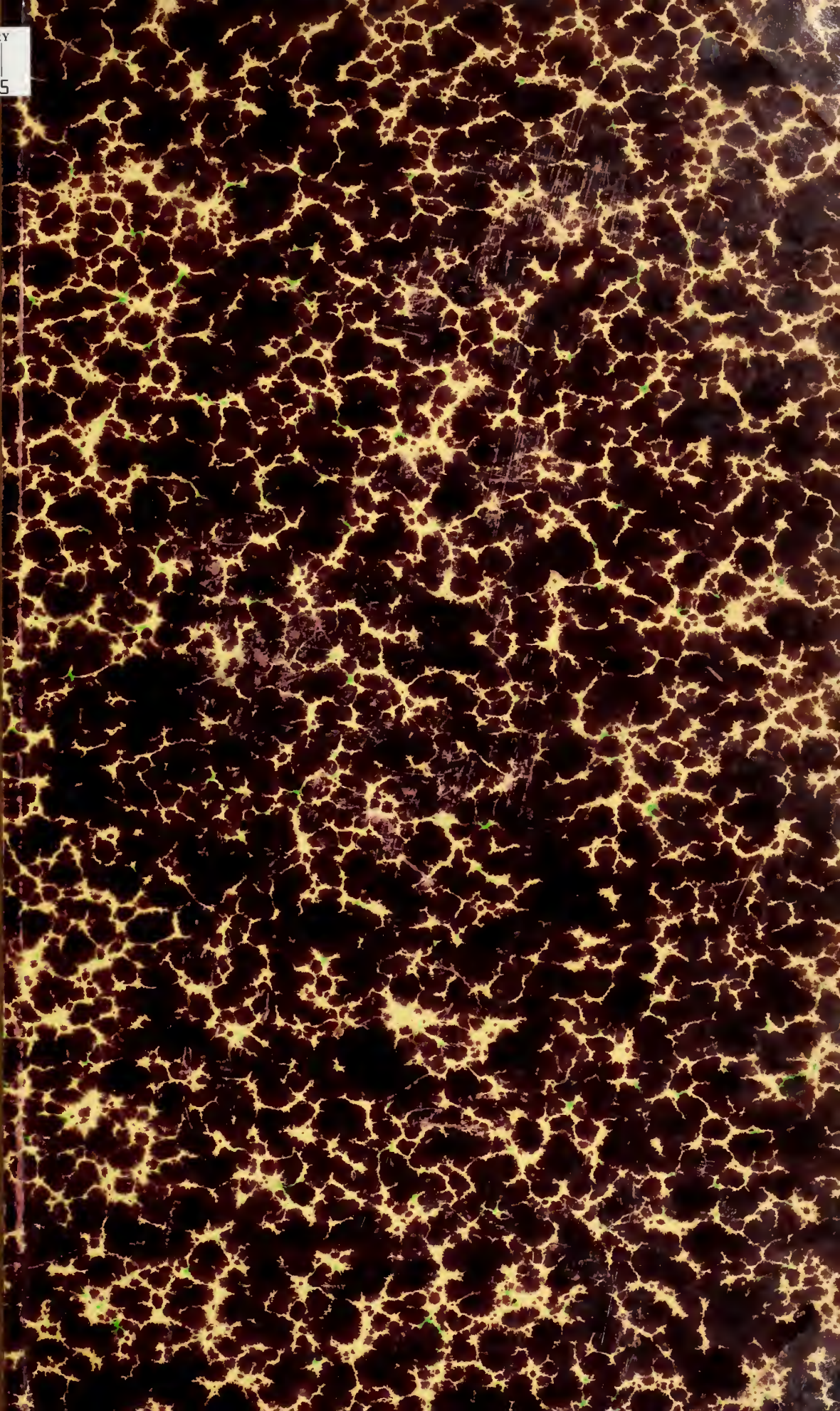


COUNTWAY LIBRARY

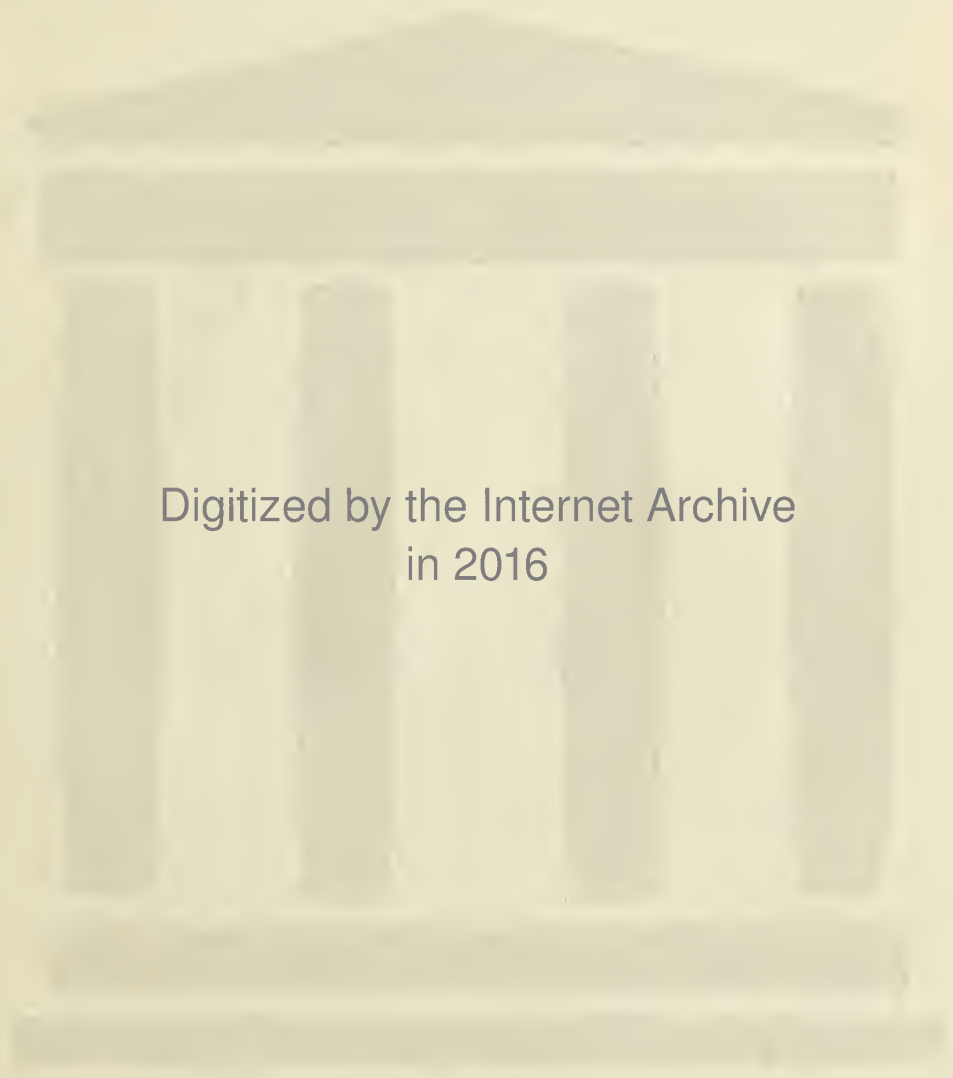


HC 3JAU 5



BOSTON  
MEDICAL LIBRARY  
8 THE FENWAY





Digitized by the Internet Archive  
in 2016

<https://archive.org/details/journalofmedical6193alab>

# OFFICERS OF THE ASSOCIATION

1936-1937

## PRESIDENT

LLOYD NOLAND (1937)..... Fairfield

## VICE-PRESIDENTS

A. B. COXWELL (1937)..... Monroeville      C. P. HAYES (1939)..... Elba  
W. M. SALTER (1938)..... Anniston      M. E. SMITH (1940)..... America

## SECRETARY

## TREASURER

DOUGLAS L. CANNON (1939) .. Montgomery      J. U. RAY (1938)..... Woodstock

## THE STATE BOARD OF CENSORS

E. V. CALDWELL, Chm. (1940)..... Huntsville      F. W. WILKERSON (1938)..... Montgomery  
S. A. GORDON (1940)..... Marion      T. B. HUBBARD (1937)..... Montgomery  
J. D. PERDUE (1939)..... Mobile      W. D. PARTLOW (1937)..... Tuscaloosa  
W. F. SCOTT (1939)..... Birmingham      K. A. MAYER (1941)..... Lower Peach Tree  
M. S. DAVIE (1938)..... Dothan      M. Y. DABNEY (1941)..... Birmingham

## STATE HEALTH OFFICER

J. N. BAKER (1940)..... Montgomery

## DELEGATES AND ALTERNATES TO THE AMERICAN MEDICAL ASSOCIATION

Delegate—J. N. BAKER..... Montgomery      Alternate—FRED WILKERSON..... Montgomery  
Delegate—A. A. WALKER..... Birmingham      Alternate—G. O. SEGREST..... Mobile  
(Terms expire with the 1937 session of the A. M. A.)

## COMMITTEE ON PUBLIC RELATIONS

JOHN A. MARTIN, Chairman..... Montgomery  
G. O. SEGREST..... Mobile      J. R. GARBER..... Birmingham  
S. KIRKPATRICK..... Selma      M. M. DUNCAN..... Huntsville

## COMMITTEE ON MENTAL HYGIENE

FRANK A. KAY, Chairman, Tuscaloosa..... 1938  
J. G. BEDSOLE, Jackson..... 1937      W. S. LITTLEJOHN, Birmingham..... 1939

## COMMITTEE ON MATERNAL AND INFANT WELFARE

A. E. THOMAS, Chairman, Montgomery..... 1938  
HUGHES KENNEDY, JR., Birmingham..... 1937      J. M. WELDON, Mobile..... 1939

## COMMITTEE ON PREVENTION OF CANCER

K. F. KESMODEL, Chairman, Birmingham..... 1938  
J. P. CHAPMAN, Selma..... 1937      H. M. SIMPSON, Florence..... 1939

## COMMITTEE ON PREVENTION OF BLINDNESS AND DEAFNESS

LUCIEN BROWN, Chairman, Gadsden..... 1939  
HARVEY SEARCY, Tuscaloosa..... 1937      B. B. WARWICK, Talladega..... 1938

## COMMITTEE ON POSTGRADUATE STUDY

RALPH McBURNEY, Chairman, University..... 1939  
CABOT LULL, Birmingham..... 1938      CLARENCE K. WEIL, Montgomery..... 1937

## COMMITTEE ON FRACTURES AND FIRST AID

H. EARLE CONWELL, Chairman, Birmingham..... 1939  
MARCUS SKINNER, Selma..... 1938      W. S. ROUNTREE, Wylam..... 1937



# THE JOURNAL

OF

## The Medical Association of The State of Alabama

Published Under the Auspices of the Board of Censors

---

Vol. 6, No. 1

Montgomery, Alabama

July 1936

---

### THE IMPORTANCE OF THE TRAINED PHYSICIAN TO MODERN SOCIETY\*

#### THE PRESIDENT'S MESSAGE

By

CHARLES ALSTON THIGPEN, M. D.  
Montgomery, Ala.

My first word is an expression of appreciation to you for the coveted honour which you saw fit to bestow upon me one year ago in Mobile when calling me to the high post of the Presidency of this Association; an honour to which I am the more keenly sensible because of the gracious and unanimous manner of its bestowal. It is also peculiarly gratifying that I am to be afforded the pleasure of presiding over your deliberations here in Montgomery—the City of my adoption; the City in which I have long laboured and learned to love; your own Capital, replete with historic landmarks and memories; and, for more than three-quarters of a century, furnishing the battleground for our political gladiators. Did not the time factor forbid, the temptation would indeed be strong to expand upon the contributions made to medical science emanating from this staid old City; for here it was that there lived and wrought such leaders in our profession as Sims, W. O. and B. J. Baldwin, Seely, John H. Blue, Sr., Michel, J. B., and J. L. Gaston, W. M. Wilkerson and Isaac L. Watkins; not to make mention of the three peerless health leaders of this Association—Cochran, Sanders and Welch.

A glance at the Constitution of this organisation reveals that the President is expected “to submit to the Association a message devoted to a discussion of its interests, organisation, objects or business.” A pe-

rusal of the sundry messages of my distinguished predecessors, submitted to this Body in by-gone years, discloses the fact that, while many of them have laboured assiduously and with manifest oratorical fervor in an effort to comply with this constitutional requirement, many of the well-intentioned remedies submitted by them in the form of recommendations failed to clear the hurdle of our austere and august Board of Censors. Having myself enjoyed the distinction of serving as a member of this Body, which, parenthetically, I consider the strongest single bulwark of this Association and one whose membership must always be carefully chosen by you with an eye single to loyal and altruistic service, I immediately hasten to assure that this brief message will embrace no recommendations of a controversial nature calling for extended effort on the Board's part in order to refute. On the contrary, and with your kind indulgence, it will be limited, largely, not to a discussion of specific, immediate problems confronting you, but rather to the broader educative and ethical aspects of our profession which I feel should dominate and inspire all of your future plans and aspirations. It has been given to me to serve continuously in your ranks for 48 years, having first become identified with organised medicine in this State in 1888. During this rather long period of almost a half-century scientific medicine has forged further forward into hitherto unexplored and empirical fields than in any like period in history and has placed at mankind's disposal literally scores of weapons for battling off disease and for the prolongation of human life. Because of this seemingly long span of time, however, I hope it may not be argued that it is impossible for an individual, born in one age and living in another, to preserve an open, elastic mind, capable

\*Presented to the Association in annual session, Montgomery, April 21, 1936.

of serving even this present, rather critical and rapidly changing generation.

Probably no field of endeavour touches quite so closely the every day problems of humanity as does medicine. In our profession, particularly, it is difficult, if not impossible, to render self-satisfying service unless the individual physician is willing not only to keep his mind open and alert but to keep it perpetually fresh and galvanised, through feeding to it, in all possible ways, the newer, scientific advancements continually being made by his profession. The physician who assumes the attitude that his education is complete upon receiving a piece of parchment in the form of a medical diploma will prove both a failure to himself and a menace to the community he pretends to serve. At this point he has, in truth, but taken the first step of his professional education; he must continue a student throughout life, preserving and cultivating an analytical and intellectual attitude towards all problems presenting in the busy routine of his daily life. He must early learn that the practice of scientific medicine of today compels the physician to so enlarge his horizon and his scope of vision as to embrace not only the sick individual but also the family group and the community as well. The cure of disease cannot and should not be separated from its prevention; and the conscientious physician who views his profession as an integral and important part of society finds himself in position to make lasting contributions to his fellowman, regardless of where his lot may be cast.

In this connection, it should be stressed that this particular medical organisation, to which you and I are privileged to belong, offers rare and exceptional opportunities for just such altruistic service, over and above its purely scientific advantages. As you know, membership in this Association automatically makes of one an integral part of the legal machinery of this State for the conduct of its health activities—surely a no mean responsibility. For these reasons, quite apart from any personal gain, I would strongly urge, and more particularly upon our younger members, the need for a more careful study and a better understanding of the detailed structure of this Association and of the philosophy which has been woven into it by its foun-

der, for the purpose of achieving these high objectives. While we are persuaded, I believe, that certain readjustments in the distribution of medical services are both indicated and desirable, in order to meet our changing social conditions, we are likewise convinced that hasty, precipitous efforts at readjustment, without the counsel and aid of the medical profession, are likely to be fraught with disaster from all sides. Because of our long and intimate experience in the management of the public health affairs of this State, no other state medical group finds itself in so favourable a position to cope with the many baffling economic problems of the future as does our Association. Our people as a whole have learned to confidently lean upon us for health guidance; and I have faith in the ability, the integrity and the courage of this Association to work out satisfactory solutions for social problems as they may hereafter arise. In no sense would I presume, at this time, to suggest a definite solution. For this, much patient toil and thought will be necessary on your part. But it is urged that these important matters be receiving your earnest consideration, so that there may be preserved, both for our profession and for posterity those finer intangibles of ethics and moral conduct, which, throughout the years, have adorned medicine in its purest form.

It will be recalled that at our last annual meeting in Mobile the Board recommended, and the Association approved, the allocation of an amount not to exceed \$300 annually for the purpose of promoting post-graduate lecture courses for physicians in the more rural sections of our State. Following upon this action, arrangements were made with the Children's Bureau in Washington for a course of lectures in pediatrics to be given during the summer months by several outstanding pediatricians. During the year previous, a similar course in obstetrics was provided. The reaction of the profession to these efforts has been gratifying in the extreme. No physician can hope to adorn the practice of medicine, nor succeed in fulfilling his obligations to society if he fails to glorify his work, to be dignified by it, and to be willing to develop, to a maximum, all of his native talents. Despite the crowded days, he should early learn to devote a certain portion of his time



to study and reading, to meditation, to attendance upon medical meetings and, when at all possible, to postgraduate work. The dividends to be reaped from fresh inspirations flowing from these sources will more than compensate for financial losses in time thus spent. Fortunately for society, the competitive features of medicine, as now practiced in this country, compensate, in a measure at least, for habits of mental inertia and slothfulness on the part of a physician.

If I may be permitted to record an observation, based on personal experience over many years in my own specialty, it would be that those physicians who, early in their professional career incorporate these principles into their working ritual, commit the fewest errors and give to their patients the highest type of medical service. So important does this need seem for a continuance of these efforts to provide additional refresher courses for those of our physicians so circumscribed as to render these advantages difficult for them to procure, that your President would suggest serious consideration be given to the creation within the organisation of a standing Committee on Postgraduate Study, whose responsibility it will be to carefully survey and study the work now being conducted in other states and to co-operate with the Board in the further promotion of programs of postgraduate study in the several fields of clinical medicine.

#### THE SCIENTIFIC PROGRAM

A perusal of the scientific program for this meeting will reveal that, in certain particulars, its content and arrangement differ somewhat from the established custom of former years. Effort has been made to select major topics of general interest to the profession and to have each subject presented first by an outstanding authority in his particular field. The discussion of each is then further continued by members of our own organisation who limit their activities to this particular specialty. In this way, while opportunity is not given for the presentation of so large a number of papers, nor, possibly, for so great a number of our own membership to appear on the program, your President hopes that this approach to the presentation of the topics to be discussed will prove so valuable to our

entire membership as to merit your approval and an exceptional attendance upon each session.

#### GORGAS MEMORIAL BUST

On the 4th of July, 1920, in London, after having retired from the post of Surgeon General of the United States Army, and while bound on a mission of mercy to the West Coast of Africa, there passed into the Great Beyond the most illustrious citizen Alabama has ever produced—William Crawford Gorgas. His life, his labours and his prodigious accomplishments for the betterment of human life the world over are now so well known as to need no comment here. By common consent he has been acclaimed one of the world's greatest benefactors. In 1922, two years following his death, this Association, in order to honour his memory, inaugurated plans for the raising of funds through individual subscription amongst its members to procure an appropriate bust, similar to the ones of Drs. Cochran and Sanders, and now occupying places in front of the Department of Health building. Such an appeal struck an immediately responsive chord amongst the members of this Association and, as a result, a handsome bronze bust of Gorgas was executed by the same sculptor—Bryant Baker—who designed and made those of Cochran and Sanders. Because of lack of a suitable place on the lawn of the Department of Health building, where the other two now stand, the Gorgas bust, which has been completely paid for, is stored away in an inconspicuous place. There still remain in the Gorgas Memorial Bust Fund sufficient monies to procure a suitable pedestal for this bust. Pending such time as the Department of Health may be able to acquire a more commodious building of its own where treasures of this nature may be permanently placed, I, as your President, would like to urge that this Association authorise the State Health Officer to take up with the Governor the placing of this bust in the corridors of the State Capitol where it may be viewed and enjoyed by the many visitors who daily frequent the Capitol building. It is further suggested that the State Health Officer be authorised to use such money as may be necessary from the Memorial Fund for the purchase of a ped-

estal and that the Board of Censors collaborate with him in the selection of a suitable wording for the inscription to be used thereon.

#### HIGHWAY FATALITIES AND ACCIDENTS

The appalling destruction of life and limb now taking place on the thousands of highways in this country is at last coming to be seriously viewed by the general public. In 1934, 36,000 human beings were killed outright and 1,255,000 injured, many of whom have been maimed for life. Many of those thus permanently crippled have sustained mutilating or multiple fractures of the long bones. The record shows that 300,000 fractures of the extremities are occurring annually in this country. The first service to be rendered in these highway emergencies, of necessity, must be at the hands of laymen, and it is most important that such first aid be so administered as to incorporate two principles: the control of hemorrhage and the proper splinting of a broken limb before any effort is made to move or transport the injured person. Such an aroused public consciousness is a commendable and heartening sign to which the medical profession, as the leader and exponent of disease prevention, should give unstinted support. Particularly worthy of encouragement on the part of our profession are the efforts being put forth by the American Red Cross and public safety groups to establish, at many points along the highways, emergency first aid stations. Organisation of such stations and for the training of personnel in first aid work is now being promoted in this State both by the Red Cross and by the State Director of Public Safety. Looking to the end of further and continued co-operation in a broad program of accident prevention, I would suggest that this Association go on record as giving its approval to the efforts now being put forth by the laity to curb this growing menace and that it give serious consideration to the creation of a standing Committee on First Aid and Fractures, one of whose prime functions might well be the formulation and promotion of educational programs in this important field and active participation in the training of lay groups in the elementary principles of first aid.

#### THE ASSOCIATION'S RESPONSIBILITY AS A STATE BOARD OF HEALTH

Mention has been made above, when discussing the need for a broad educative outlook on the physician's part, of the opportunities for real service presented to the members of this Association by reason of its close interlocking with all matters pertaining to the public health of the State. Viewed in perspective and as a continuing whole, this Association may justly take pride in the unique public health machine which constitutes its own distinct gift to our people. To those of us who have watched its rather rapid growth through recent years, in order to care for the ever increasing health needs of this State, it has been exceedingly gratifying to see the ease and flexibility with which its working parts expanded to meet the newer stresses placed upon it. Some twenty-five years ago, when demands for the application of scientific principles in the field of public health began to be seriously made, there was a rather widespread, yet sincere, feeling on the part of some within the organization that the existing machinery was but poorly fitted to cope with modern health problems and should be supplanted by one of a quite different pattern.

The contenders for change held that there should be a complete divorcement of the scientific and public health features of our organization, through relinquishment on our part, of the responsibility for health work, then, as now, vested in the Association. At the annual meeting of the Association in 1915, held in Birmingham, a new plan was submitted and, after a rather hard-fought battle, was definitely rejected. Shortly thereafter, under the able leadership of Welch and with the financial aid of our own Legislature, the United States Public Health Service and the Rockefeller Foundation, we see this same machinery, once viewed as obsolete, so admirably adjusting itself to the new order as to attract world-wide attention and approval. By 1932, 54 of Alabama's 67 counties were organized for full-time health service and representing approximately 90 per cent of the population thus protected. During the years 1932, 1933 and 1934, because of drastic curtailments in appropriations, this department was forced to abolish many of its former activities and the organized coun-



ties fell from 54 to 46. In 1936, with somewhat improved financial conditions, we again see it not only struggling to regain the ground lost, but expanding its field organization to 57 health units, thus leaving but 10 counties unorganised. These few salient facts are here presented in order that you may see that Alabama's health system seems to have long since passed the experimental stage and that it is indeed worthy of preservation and of continued support at the hands of this Association, of the Legislature and of our people.

Despite the many vicissitudes of recent years, brought about through exceptional financial stresses, we, as the sponsor and director of Alabama's health system, have cause to rejoice in the courageous manner in which the health department has carried on, as well as in the earnest and dignified approach practised by it in finding a solution for its many difficult problems. Toward a more efficient development of the newer fields in public health, such as expanded programs in maternal and child welfare, better venereal disease and tuberculosis control, mental and oral hygiene, now made possible because of federal financial participation, this Association can make valuable and substantial contributions. That our members are eager to make this contribution and to furnish the much needed professional leadership is shown by the excellent type of work now being developed through the several standing committees, working within the Association. Furthermore, it must be borne in mind that adequate health protection cannot be enjoyed by our people without legislative provision being made for its continuing and satisfactory financing. Despite the abstruse opinions of our learned courts as to what may or may not constitute the essentials in government, little hope for lasting progress can be entertained for our citizenry until adequate funds are made available for the protection of human life against preventable diseases. This would seem now to be so axiomatic as not to call for restatement here. But until this principle seeps through, and into, every stratum of society, it behooves the members of this Body to exert their influence in seeing that ample funds both, state and local, are provided for the prosecution of the important health

functions for which, by law, they are now held responsible. It is my understanding that the Board will present for your endorsement suitable resolutions looking to this end and it is the desire of your President that these receive your wholehearted approval.

I now desire my last word to be one of thanks and felicitation; thanks, on my part, for the fine spirit of co-operation and help extended by each one of you, when called upon to render a service. The earnest work done by the various officers and standing committees of this Association during the past year has been outstanding and may well serve as a model of achievement for those who follow after. There still remains much pioneer and organisational work to be done by our standing committees with the various county medical societies in order that their educational programs may be properly gotten over to the general public; examples in point are the programs now being sponsored for cancer control, mental hygiene and maternal and child health. It is my hope that each one of these committees will continue to be selected with great care and, each year, grow in strength and usefulness. For the exceptional spirit of complete harmony now prevailing throughout the entire Association you are indeed to be congratulated. In such an atmosphere of hopeful promise, is it not fitting that we dedicate anew this Association to the high and noble purposes for which it was called into being—the elevation of the medical profession and the promotion of the health and happiness of our people?

---

**The Evolution of Medicine**—Primitive man, wherever discovered, has been found to possess a religion and a medicine-man. These seem to be generic in the human mind, and as man ascends in the scale of mental development, he protects his body by every means known to him. From this desire sprang the oldest law known, that of self-preservation.

Man's early life, from the infancy of the race to this good day, has been a struggle against environment—a struggle for existence. He has not only had to protect himself against the vicious tendencies of his neighbor but to protect himself against disease. Disease has been his most defiant and implacable enemy. Disease has harassed him, tormented and destroyed him.—*Burleson, Texas State J. Med., June '36.*

## A DEBT THE WORLD OWES MEDICAL SCIENCE\*

## THE JEROME COCHRAN LECTURE

By  
W. D. PARTLOW, M. D.  
Tuscaloosa, Ala.

I desire first to express to you, Mr. President, my appreciation of the very signal honor you confer upon me in inviting me to occupy this important hour on your program. When I review the list of names of distinguished members of the profession who have occupied the place on the many previous occasions, I am, indeed, sensitive of the honor and swell with pride. At the same time, I am the more conscious of the responsibility.

It has been the custom, I believe, for the speaker to deliver an address, at this appointed time, on some interesting topic or subject coming within his specialty. With your indulgence, however, I shall take the liberty, and possibly the risk, of departing from the established custom.

As it is important with an individual, so it is wholesome for the profession, to take stock at times, with the view of reminding ourselves as to whence we came and take our bearings as to whither we are going. Has the medical profession justified itself before the world? Has the profession contributed to the progress of civilization? What do we promise the world of mankind for the future? These are questions we hope to undertake here to discuss and, in some measure, to answer.

In paying suitable tribute to the character, life and activities of so distinguished a personage as it is the purpose of this Association to honor at this time—by setting apart an hour in which to pay homage to Jerome Cochran—it seems fitting that his name be placed very prominently where it belongs among those outstanding figures of the ages, who have contributed distinctly to the development and progress of the sciences since the earliest record of human society; and to recognize that certain other like characters of the medical profession, through vision and devotion to self-sacrificing labors and research, have contributed largely in determining the trend and course

of human events—without which lives and services there would be a different story to tell as to past and present civilization.

The history of medicine is as old as the recorded history of man. One historian has observed that “since the dawn of civilization, healers of the sick and medical men have been, next to kings and queens, the outstanding characters in the progress of mankind.” Babylonian physicians, 3,000 years before Christ, possessed scientific knowledge. From the Holy Bible we have the record that, 1,700 years before Christ, Egyptian physicians exercised scientific skill, as Joseph commanded that his physicians and his servants treat him while he was ill and embalm his body after death.

This ancient period was characterized by myth, magic and superstitions. Wherever history shows a rare individual who rose above the taint of such influence, it was usually a physician who observed natural phenomena. We are familiar with the wonderful impress made on medical science and early Grecian civilization by the lives of Aesculapius and Pythagoras, his pupil. They continued to live in what they wrought as long as Athens survived.

The physician of the ancients was the man of wisdom and his knowledge of medicine must encompass all human knowledge of physics, metaphysics, theology, and natural history, and he was not only the physician, but the philosopher and teacher. In his day and age, Greek philosophy was led by Hippocrates and his associates, pupils and disciples, Aristotle, Celsus, Galen and others. It was the advances made by these physician-philosophers that brought science into the light based on observation of natural phenomena as against the previously prevailing superstition, magic and mythology. This was the “Golden Age” for science in Athens and in Rome. This Hippocratic influence guided and determined the course of events in war and in peace in the then known civilized world.

It was the envious jealousy of Alexander The Great toward this Athenian group that prompted the conquests of Alexander, with the subsequent rise of the Alexandrian school. With the establishment of the great library at Alexandria, made up largely of one quarter million manuscripts confiscated and appropriated by Alexander's armies from Athenian and Roman sources, the

\*Presented to the Association in annual session, Montgomery, April 22, 1936.

\*Park's History of Medicine freely consulted and quoted.



world of science flocked to Alexandria for study and research during the larger part of three centuries.

The part these physicians played which counted most for science was their struggle to separate the material from the spiritual, to differentiate between science and religion. Both church and state were beginning to hold a more liberal attitude toward the views of this school of medicine, and medical leaders of thought in Egypt, Greece, and Rome at this early period had promise of more freedom of thought, looking toward separation of science, church and state until Rome embarked on its military program of conquests when it absorbed, as a central military government, all functions of church and science.

Roman militarism threatened the then civilized world. This ambition of the Romans largely grew out of their jealousy toward Alexandrian scientific progress, which had been made possible through conquests of Alexander The Great, which Rome resented, and which was itself prompted by the same feeling of Alexander toward Grecian preeminence in science. The romance between Mark Anthony and Cleopatra failed in its purpose on her part to protect and prevent the destruction of the Alexandrian library under order of Julius Caesar. This incident was the beginning of a chain of disasters, consequent upon the aggressive military program of Rome which brought to an end ancient medical and scientific progress. The jealous covetousness of Rome toward the advance of science and civilization, of Athens and of Alexandria is history's explanation of the Roman incentive to build up an unprecedented military; and the march of Caesar's armies in the destruction of what had been accomplished through the preceding centuries led directly into and was responsible for the long suppression of human individual initiative through the ten centuries of the Dark Ages.

(May I presume to digress at this point to remind ourselves that history often repeats itself, and that in recent times we have witnessed a threat by a world military power which modern Christian civilization bravely combated and heroically defeated? At the very present, there is a government presuming to have discovered a solution to all human, economic and social problems,

which proposes as one of its articles of political faith, a world empire with Moscow as the Capital. Active propaganda, looking to consummation of this self-assumed mission, is felt already in this and most of the civilized countries of the world. There is already more than one dictatorship established to thwart this dangerous threat. God save America!)

When we, of this modern era, are reminded that our present civilization began merely as a revival of the learning and lore of the ancient Greeks, Romans, and Egyptians; that the hitherto dominant Roman Empire was submerged in the flood of barbarians from northern Europe; and that the ensuing darkness, pestilence, recurring wars, universal superstition and ignorance continued more than 1,000 years until the revival of letters in the 14th and 15th centuries, we cannot escape a profound gratitude to Divine Providence that a record of the accomplishments of these ancient physician-philosophers, as well as the Holy Bible, were so miraculously preserved to us. This came about and these records were brought down to us through nuclei of civilization, first in tolerant Arabia, then through succession to Salernum, to Naples, to Bologna, to Montpellier, to Paris. Thus a few rays of that intellectual light which had shown so brightly some ten centuries before in Athens and Alexandria and Rome were preserved.

These rays of light, made more conspicuous by the intellectual night which they barely illumed, were a beacon for men who were groping for more light. Medical science distinctly led in this revival. Gilbert and Gaddensden are medical names prominent in this beginning awakening. Gilbert opposed the clergy by holding that papal medical edicts were not sacredly inspired, so he was persecuted and his volumes destroyed by the Inquisition. Guy De Chauliac struggled for recognition of medicine as a dignified science, reviving the ancient Hippocrates, Galen, and others, translated and quoted from the ancient Greeks, Romans, Egyptians and Arabians and led the struggle to liberate science from religion. It was to the credit of this group of physicians that minds began to observe and study natural phenomena and to turn away from magic, myth and superstition; and thus the age of renovation and reform,

the Renaissance, was initiated. Medicine had again thus contributed by leading the way out of darkness toward light. "There followed truly an awakening in every department of knowledge and along every line of study. It was as if the minds of men had been dormant, had lost their power of receptivity, and, after a long period of torpor, had awakened in a new atmosphere, amid new surroundings; as if there had burst upon them a sudden appreciation of ability to do things hitherto undreamed of and to acquire knowledge which had been possessed by none. Once free from the shackles imposed by authority of church and state of the past, these minds severed their Gothic bonds and started forth in every direction with the ardor of youth and the interest of novelty, all engaging in the general enterprise of erecting from the debris of antique science a new temple."

Medicine from its vantage point continued to march in the vanguard. It was a physician who discovered the properties of reflection and refraction of light. It was through this discovery, the uses of mirrors and prisms, that the telescope and microscope were invented; navigation expanded and new worlds were discovered as direct results. Medicine and the other sciences began to occupy an independent relationship; an improved social order gradually came about; hospitals and other institutions began to be dedicated to humanity. It was again a physician and teacher, Leoniscensus, who first translated Hippocrates and Galen from Greek into Latin, and together with his associate, Dr. Thomas Linacre of Canteberry, popularized the study of medicine and other sciences by translating the ancients into old English. Linacre later became physician to King Henry VIII, and through this connection with the court was able to exert great influence in promoting the sciences and a liberal popular attitude toward separation of science from religious dominance.

Joubert, Chancellor of the University of Montpellier, and physician to King Henri III was author and publisher, and through his books and his intimate court connection the final absolute separation of the priesthood from medicine was completed. The education coming out of the contention of this long line of physicians for the liberation of science from religious dominance

had a much further effect. It led popular thought on toward the separation of church and state, thus contributing its major share, not only to the freedom of thought in science and in religion, but to the liberty of mankind in the events that rapidly followed the enlightenment incident to the long struggle of these patriots and defenders of freedom of thought. One historian has said "medicine furnished the first examples in what we are accustomed today to speak of as the exact method and, as a result, we witnessed in the 17th century the advent of modern realism in almost all departments of thought." It was in this period that the great Italian, French, and English universities were established. The sciences became more comprehensive and the studies of philosophy, botany, chemistry, physics, and physiology began to break away from the purely medical science. This freedom of thought led rapidly to discovery and invention in which medical science had initiated and medical men continued to play a part. It was in this period that there appeared rapidly the discoveries of Sir Isaac Newton, James Gregory, Napier, Milton and William Harvey, with whose epoch-making discoveries you are all familiar.

Let us summarize what has been said up to this point:

1. Medical science was largely the creator of ancient civilization.
2. The jealousies between these ancient civilizations were responsible for the conquests of Alexander and of Caesar.
3. Medical science did more than any other agency to preserve the records of the ancients.
4. Medicine fought prevailing superstitions, contended for separation of science from church and for freedom of thought, which freedom of thought led finally to freedom of science from religious dominance and in turn liberated church from state.
5. By gradual evolution in thus freeing the human mind from the shackles of state and superstitions of the Dark Ages, the Renaissance, the present era and the liberty of man were made possible.

About the last years of the 18th century, one of the most notable events in the history of medicine was developed by Dr. Edward Jenner in the experimentation and



introduction of the systematic practice of preventive inoculation against smallpox. The practice of communicating smallpox artificially to the healthy to immunize against the disease reaches back into antiquity, being used by the Brahmans, Chinese and Arabians. In the development of vaccination and in its early practice it was fought vehemently by the clergy who quoted the Scriptures and stigmatized "it as an atrocious invasion of the Divine prerogative and mutilation of the human body." Jenner, however, is credited with the development of modern vaccination.

Surgery was rapidly struggling toward the front to be made respectable and admitted to medical practice and during the last half of the 18th century prominently included obstetrics. Obstetric forceps were beginning to be used; and Thomas Denman, an Englishman pursuing obstetric practice, popularized the use of forceps and demonstrated the "portability of puerperal fever," which have saved innumerable lives of both mothers and infants.

Another step forward that marks a milestone in the progress of civilization stands out prominently in the 18th century when Pinel, a French physician rising out of poverty and obscurity to a position of world importance in medicine, Father of the School of Realism, declared that insanity was not a crime or offense, as had thus far been considered, but a disease. He was led to this investigation by the fate of one of his particular friends who became insane, escaped into the forest and was destroyed by wolves. He liberated the insane in Paris from their fetters and from the hands of brutal keepers and took them from among the prisoners where they were kept. From this point and time grew up the modern school of psychiatry, taking the place of superstition, witchcraft, punishment and condemnation which had been the lot of the insane up to the date of this reform led by Pinel and later by Lorry. This work of Linel and Lorry in liberating the mentally sick from the evils of prisons and punishment among the criminals; and the clarification of witchcraft and similar beliefs recognized in otherwise respectable circles was itself worth to the world of mankind the entire history of medical effort, research and labor. It did much to forestall the tendency of civilization to again relapse into

superstition and decay about the time of our colonial witchcraft era.

Probably the greatest epoch in medical history for all time occurred about the middle of the 19th century. The notable works of Pasteur, Klebs, Hueter, Davaine, and Koch in the discovery and classification of certain living vegetable and animal organisms or germs associated with disease; and, finally, the full development and application of these discoveries by Lister in surgery upset previous theories, and inaugurated a program of research which has revolutionized the etiology of disease, the practice of surgery and opened up avenues and possibilities as to prevention, sanitation and public health, giving to the world of mankind a benefaction, of which the value to human life can never be estimated. Prior to these discoveries, throughout medical history we find even the most brilliant in medicine and surgery groping in darkness as to the causes of disease, spread of disease, prevalent disastrous epidemics and plagues, at times taking a large per cent of the population—all of which have since been made avoidable and preventable. It was the wisdom of Lister in his application of these discoveries to surgery that has made the success of modern surgery possible. The untold millions of human lives saved both in war and in peace by the labors of these wonderful physicians, who discovered and developed the theory of infection as being specific living organisms, has been a contribution of medicine to humanity greater than all material blessings from other sources.

May I be permitted here to pause in order that I may pay a deserved tribute to a member of this Association, who, in his message as President in 1898, recommended this Jerome Cochran Lecture. His recommendation was adopted by the Association and has been observed at every annual meeting since that time. He is one of the only two living students of Lister. His career and professional attainments have not only honored this Association but do honor to the Master himself. I refer to none other than our most distinguished and scholarly member, Dr. L. L. Hill.

This Association, particularly, always looks with pride to the professional accomplishments of its former member, J. Marion Sims, who developed modern gynecology.



His innovations and inventions distinguished him the world over, he having been invited as special guest to practically every European capital, where he operated and demonstrated to the profession. His life and work constitute one of the profession's greatest achievements. His life continues a benefaction to suffering women. One historian has said of him: "Probably the most prominent passed figure in American gynecology is J. Marion Sims . . . the introduction of whose methods and speculum in 1852 marked an epoch in the treatment of pelvic diseases of women." It is difficult to estimate the value of such a life to the medical profession and to human kind.

In all the history of medicine, probably the greatest boon to suffering humanity was the discovery and application of modern anesthesia. Since earliest medical history certain drugs have been known and used in this connection with imperfect results. Ulysses and his companions were stupefied by nepenthe; a draught of vinegar and myrrh, or gall, was offered Christ upon the cross, as it often was to malefactors being executed. Herodotus speaks of a peculiar habit of the use of stupefying vapor, probably produced from hemp seed. Since Biblical times, the most common narcotic seems to have been alcohol; Socrates was permitted to drink hemlock to sooth himself during his last hour. Apuleius wrote, "If anyone is to have a member mutilated, burned, or sawed, let him drink an ounce of mandragora with wine, and let him sleep until the member is cut away, without any pain or sensation." However, earnest attempts of humane surgeons in various parts of the world failed to develop any agent safe and practical to prevent pain, and Velpeau wrote, as late as 1839, that "to escape pain in surgical operations is a chimera which we are not permitted to look for in our time."

Although chloroform was discovered in 1831 by Guthrie of this Country, and about the same time by French and German contemporaries, it was not recommended in surgical operations until 1847. It had been known for sometime that sulphuric ether inhaled produced toxic and stupefying effects. In certain quarters ether parties were given, as occasionally now alcohol parties are given for the same purpose. Dr. Crawford W. Long, of an isolated village in

Georgia, attending one of these parties, observed its effect on others and inhaled some of the gas himself. It then occurred to him to try it on a patient for operation. In 1842 he removed a small tumor from a patient thus anesthetized and without pain. Further experiments by Long, and about two years later by Jackson, Morton, and Wells, led finally to the first public demonstration, in the Massachusetts General Hospital, October, 1846, of the use of ether as an anesthetic.

No one realizes more than the surgeons of our generation what the painstaking studies of Pasteur, Koch, Lister and others, in making possible antiseptis, and the labors of Long, Morton, Jackson and Wells, in bringing forth a practical anesthetic, have meant in making modern surgery possible. These two groups of physicians should always stand high on the peak of enduring fame in the minds of an appreciative profession and world of humanity.

We should not fail to catalog among the names of "The Men Who Never Die" that of John Gorrie, a Florida physician, whose statue stands in Statuary Hall in Washington as an expression of universal gratitude. Impelled by an unquenchable thirst for truth and in an untiring effort to benefit his fever-parched patients in the sub-tropical summers by air conditioning the sick room, he gave to the world in 1850 artificial refrigeration and the commercial manufacture of ice. Deprive the world one sultry summer day of the benefits of Dr. Gorrie's discovery and we would begin to appreciate the effect of his life work on the welfare, comfort and health of our generation, to say nothing of commerce, transportation and distribution of food stuffs.

Providence often provides the man to meet the hour. Just as the discoveries and works of Pasteur, Koch and Lister were fresh in the minds of the profession, the illustrious activities and deeds of the man whose life and career furnishes the inspiration for this hour began. It was the great mind of Jerome Cochran whose vision and conception first saw the possibility and practicability of utilizing these discoveries in the protection of health, sanitation and the prevention of disease. From his great brain was born a public health system which has become a model for the world, a system which concentrates the whole force

of organized medicine on disease prevention and makes of every physician an agent for the protection of the public against disease. As we deliberate now in these annual meetings, we do so in accordance with the plan h's master mind provided. His spirit moves among us and counsels us. His was one of the profession's greatest contributions to the world. Long live the name, Jerome Cochran!

Likewise, we have witnessed discoveries within our own generation resulting from the tedious and sacrificing labors of our own contemporaries which have meant equally as much as those of the recent and remote past. I refer to the discovery of the *stegomyia* mosquito, as the carrying host of the specific cause of yellow fever, whose ravages sanitarians and medical men had blindly attempted to combat through all ages; and whose traditional malignancy had decimated armies and civil population alike, but whose prevention and control, after this discovery, became simple and easy by intelligent application of the knowledge thus revealed. It was the work of Walter Reed, Carroll, Gorgas and Lazear, the last mentioned of whom gave his life that others might know, believe and be saved, that brought the perplexities of yellow fever into the bright light of simplicity.

Malaria in like manner had always been a stubborn, baffling enemy to the vitality, vigor and life of the human race with its untold suffering and death toll and had been attributed to every imaginary source until, soon after the discovery of the specific cause of yellow fever, the source of malaria was positively located in another form of mosquito. Figuring prominently in both of these epochal discoveries and leading in their application to sanitation and public health of the world wherever these two maladies were accustomed to prevail, no other figure played a greater part than the late William C. Gorgas, known to the world as its greatest tropical sanitarian.

The last mentioned two discoveries as to yellow fever and malaria through the medical profession have probably contributed more to the safety and health of the world population—and rendered possible the healthy, safe and happy habitation of parts of the globe hitherto forbidden; and made possible construction, navigation and com-

merce where these were either previously unknown or were attempted only with anxious apprehension and unsafety to life—than the sum total of human accomplishment otherwise.

When we constantly and daily enjoy, as we do, the protection of safe and wholesome water and milk supplies, as measured by the lot of those of the comparatively recent past who ignorantly ate unprotected food and drank infected and polluted water and milk; when we realize that common lay information includes a knowledge of these dangers and those of flies, mosquitoes and other methods of conveying disease, and that intelligent rules and information of hygiene, sanitation, and disease protection are now available and taught to all, do we stop to render thanks to whom credit is due for all these blessings—to medical science?

As we unroll this lengthy scroll of fame and accomplishments, leading down from our present day through recent, medieval and ancient past, we find, standing prominently as benefactors to the human race, making possible and promoting progress more than any other vocation of mankind, these leading lights of the medical profession—Gorgas, Cochran, Morton, Long, Lister, Koch, and Pasteur; and on down the long line through the dim, dark spots and vistas of history to Galen, Hippocrates, and Aesculapius, whose names not only our profession should ever hold sacred but the world of mankind should recognize as its savior from the disastrous possibilities always threatening the retardation and destruction of mankind. From what has gone before, we are amply and fully justified in making the claim that the medical profession has had a greater part in influencing the course of human events, in leading thought of men from the obscure and unknown toward the light of free and independent thought in its constant search for truth, than any other group or profession and has, therefore, contributed more to the progress of civilization than can be ascribed to any other agency or influence.

As we follow this golden thread through the history of medicine, and remind ourselves of the outstanding accomplishments of the profession, which has furnished a leadership of thought beckoning on toward progress, all mankind offering itself a benefaction to all generations, we are indeed



conscious how important it is that the profession exercise vision and wisdom in what may be done in the future in medical science, in order to maintain our honored place and be worthy of the traditions of the past.

Therefore, as we gaze into the crystal, what do we see as the problems awaiting and the possibilities of solution? We may refer to the past 85 years as the period of "Infection" in medical history. We have observed the accomplishments in medicine, surgery, public health and sanitation by medical science in this period. We may look upon the era now opening as the period of internal chemistry, physiological chemistry, and physiology. What may be determined as to the interrelationships of body functions, internal secretions, nutrition, endocrinology, metabolism, and the general cooperative human laboratory in maintaining an equitable equilibrium of all functions, from brain to skin and from personality to reproduction, offer a challenge to the pride and ambition of those who love the profession and hope to maintain its high place in service to society, both in cure and in prevention.

Likewise, as we project ourselves by such process of visualizing the future, we see great possibilities for medicine in the field of sociology. Our profession yields to no other the claim for greater service to humanity in the past, and, since the days of Hippocrates, our ethical standards have compelled us to see that suffering humanity be served with or without remuneration. Therefore, the indigent, as well as the rich, have always benefited alike by the skill and knowledge of medicine. Now, under a general readjustment of social conditions, it is incumbent upon the medical profession to find a way in which modern hospital care may be supplied to the indigent, the large middle class and the well-to-do alike. Sporadic efforts in this direction are already being made, and, unless the medical profession can work out an acceptable and workable plan, lay sociologists and politicians may, with good intentions, supply some impractical and possibly destructive scheme. No plan need to include compulsory socialization of medical service. That has always been supplied and will always be supplied by the medical profession in its contribution to human and social betterment, but

the hospital service must be provided by some yet unestablished comprehensive scheme.

Also there should exist a very close relationship between medical science and public education. In spite of the fact that world legislation is constantly making an effort to strike a level or average of mental deficiency and mental excellence, the aristocracy of intellect must be recognized as it always has. World progress, therefore, demands that education or particularly higher education be adjusted to the varying degrees of native mental capacity.

Another problem presents itself as we gaze into the future: Until medical science improved social, public health and sanitary conditions, nature's survival of the fittest defended the human race against the dangers of degeneracy. Now that under the present order of a humane world, the weak are preserved as well as the strong, if we are to continue as a virile, upstanding race in body and mind, eugenics demands its share of study and attention or euthanasia may become a necessity. In this increasingly complex age, the challenge stands out before the profession to answer the question as to why the two most vital and sensitive organs of the body, the heart and the brain, are failing in rapidly increasing numbers. We shall learn in this era now opening much as to the physiology of life and the biology and physiology of reproduction and perpetuation of life.

---

**Uterine Hemorrhage in Late Pregnancy**—Uterine hemorrhage in late pregnancy is one of the most formidable complications with which the practicing physician has to deal. We may classify it along with infection and toxemia to make up the three main causes of maternal death. Believing that the mortality rate is decreased or increased according to the judgment and skill of the accoucheur, good results depend on an early diagnosis and correct treatment.

Hemorrhage in late pregnancy is of serious nature and should be regarded as such until proven otherwise. The patient who is bleeding should be in a hospital for diagnosis and possibly treatment.

When bleeding comes from a placenta situated near the cervical os in a pregnant woman near term or in the last trimester of pregnancy, one has to consider placenta previa first.—*Hoffman, South. M. J., July '36.*



# FORMALDEHYDE IN THE FLUIDS OF THE BODY\*

## PRELIMINARY REPORT

By  
EUGENE THAMES, M. D.  
Mobile, Ala.

In consequence of a three-year search instituted by the writer for an acid substance which might be causing the peculiarities observed in the urines of patients suffering from chronic infections<sup>1</sup> he was rewarded in April, 1936, by finding formaldehyde in traces—sometimes in larger amounts—in the various fluids of the body. Those tested were urine, blood, spinal fluid, exuding lymph, nasal excretion and tears; so universal seemed its occurrence that in traces it is probably a normal constituent of the fluids of the body. Formaldehyde is very closely related to formic acid occupying the next position to it in the methyl alcohol series, the transformation being effected by oxidation. However, formaldehyde is to be considered the more toxic. The statement is made in two textbooks that formic acid may be recovered from urine, blood, the spleen, perspiration and biliary passages.<sup>2</sup> As these statements are unqualified we may assume that they refer to people generally.

The test for formaldehyde, using resorcin, is very delicate because of the instability of that chemical. Also, the presence of traces of formaldehyde in perspiration and even in rain water makes the possibility of contamination an ever present danger. There are several other substances which will give the test quite as well as resorcin: notably phenol and salicylic acid—see A. I. Cohn's book, *Tests and Reagents* . . . page 300—Thoms (Phenols, etc.). In milk analysis resorcin is not required. Thus one may be confused in testing bodily fluids to find the test reacting positively without the addition of resorcin. Phenol may be manufactured in the body<sup>3</sup> and salicylic acid is used extensively even in self-medication.

\*Reported at a meeting of the Mobile County Medical Society, April 1936.

1. Thames, E.: *Chronic Undulant Fever: a Pathological Debility Often Resulting in Severe Nervous Disorders*, Medical World 53: 175, 379.

2. United States Dispensatory, 17th ed., p. 1634. Emerson: Legal Medicine and Toxicology, p. 314.

3. Kelly, A. O. J.: *Practice of Medicine*, p. 304.

For these reasons one might not only get false positives, but also disregard actual formaldehyde reactions. Much work will be required to standardize this test and to arrive at what may be considered *normal traces* before any but general clinical deductions can be made. The writer's present impression is that normal traces are weaker than one part to ten thousand solution U. S. P. formaldehyde—equaling 1 to 25,000 nascent strength. The work done indicates that the substance may be present in a concentration many times this—in fact, the disguised odor of formaldehyde may sometimes be detected in urine. It was this feature that led the writer to (directly) test for this chemical. Formaldehyde is quite an acid substance, but in the amounts present probably does not affect the reaction; it is rather an exponent of the acid state.

Some months prior to this finding, in an article<sup>4</sup> on "The Infection Neurosis," the possibility of such a substance circulating in the blood was postulated in the following language: ". . . The tissues (nerve) are being played upon by some product of metabolism that, for want of a better designation, we will call a hydrocarbon narcotic." Again: "Theoretically, the group hydrocarbon narcotics most nearly covers the type of substance which the writer has in mind." Now, formaldehyde is a derivative of a hydrocarbon, being second of the methyl alcohol series. As the line of reasoning in the writer's article on "The Infection Neurosis" so clearly pointed to the probable existence of such a substance, he regards his finding of this chemical as more than a mere coincidence.

---

**Diathermy**—Over enthusiasm is the vehicle upon which many, if not most, medical methods have ridden—many of them to comparative oblivion—others up the hill of opposition, finally to a crest of popularity and thence rolled back to lower levels of substantial and dependable usefulness. The present enthusiasm for hyperpyrexia is the result of recognizing fever as one of the beneficial, protective body reactions.—*Fitzgerald, Virginia M. Monthly, June '36.*

4. Thames, E.: *The Infection Neurosis: a Phyllogenetic Explanation of (a) the Predisposition to, and (b) the Causation of Neurasthenic Symptoms*, Medical World 54: 168.

# THE JOURNAL

## OF THE

### Medical Association of the State of Alabama

*Editor-in-Chief*  
FRED W. WILKERSON.....Montgomery

*Associate Editors*  
M. Y. DABNEY.....Birmingham  
W. D. PARTLOW.....Tuscaloosa  
J. N. BAKER.....Montgomery  
DOUGLAS L. CANNON.....Montgomery

Please send in promptly notice of change of address, giving both old and new; always state whether the change is temporary or permanent.

Office of Publication  
519 Dexter Avenue.....Montgomery, Ala.  
Subscription Price.....\$3.00 Per Year

July 1936

#### RABIES TREATMENT FUND EXHAUSTED

The attention of the Association is directed to the following letter, bearing on a very important matter, placed in the mail on June 17.

State of Alabama  
DEPARTMENT OF PUBLIC HEALTH  
Montgomery

June 17, 1936.

To Presidents and Secretaries of County Medical Societies,  
To County Health Officers.

Dear Doctors:

Won't you please give earnest consideration to this communication and disseminate the information contained in it by whatever channel seems to you best?

When the State Comptroller revealed a few weeks ago that, in the period October 1, 1935-September 30, 1936, there would be available but 28.58% of the legislative appropriation for Pasteur treatments, the State Health Officer tried zealously to procure an additional grant to the end that physicians might be compensated for the administration of rabies vaccine to indigents. On yesterday the Comptroller advised definitely no additional money could be hoped for.

It is necessary, therefore, for the State Department of Health to advise that, from this time and until further notice, no fees can be paid for administering the vaccine. Treatments distributed from 4:00 o'clock yesterday carry with the package the following notice:

"Since the amount made available by the State for the administration of rabies vaccine to indigent patients is exhausted, the State Department of Health regrets no fee can be paid for this or subsequent treatments unless otherwise notified.  
By Order of the State Health Officer."

It is needless to say that the department is regretful such situation prevails; and dares hope the strained financial condition will not endure indefinitely. It bespeaks the continued sympathetic co-operation of the profession.

Yours very truly,  
J. N. Baker, M. D.,  
State Health Officer.  
By: Douglas L. Cannon, M. D.,  
His Assistant in Administration.

#### FEVER THERAPY

"Some physicians look with suspicion, not always unjustified, on any one who uses machines in medical treatment. It is their opinion that all 'machine medicine' is tinged with quackery. . . . Fever therapy is the newest form of physical therapy. It has had its origin in the laboratories of scientists of national and international repute. Its utilization has so far been entrusted almost exclusively to physicians associated with large clinics and research institutions, men familiar with accurate methods of clinical investigation. As yet, few charlatans have been able or have dared to invade the field. . . ."

"On disease processes, fever therapy may have a direct influence through its bactericidal or bacteriostatic effect on certain organisms, or an indirect influence by vasodilation, by mobilization and augmentation of certain immune bodies, and by increasing metabolism." Thus does Hench<sup>1</sup> begin his interesting account of fever therapy in various diseases. And he reminds us that the heads of the research departments of two great corporations, Dr. W. R. Whitney of the General Electric Company, and Mr. Charles Kettering of General Motors, are chiefly responsible for the development of the fever-producing mechanisms.

Hench states that "in general, results of fever therapy for gonorrhea in various anatomic sites have been excellent . . . Results in the treatment of ninety-five men who had acute urethritis, of forty-four who had epididymitis, and of several who had prostatitis were excellent; clinical and bacteriologic cures were obtained in 80 to 90 per cent of cases. The combination of fever and of Elliott treatments or pelvic diather-

1. Hench, P. S.: Clinical Notes on the Results of Fever Therapy in Different Diseases. Proc. of the Staff Meetings of the Mayo Clinic, 10: 662 (Oct. 16) 1935.



my, for gonorrhea of the female pelvis, may be more effective than fever therapy alone." Good results were also obtained in gonorrheal arthritis, especially in the acute forms. Of syphilis the author states that "it is the current belief fever combined with chemotherapy is more effective than either alone. Some workers still consider malarial fever best; many are changing to artificial fever as statistics indicate as good or better results therewith. The argument is not settled." While fever therapy has long been used in neurosyphilis, it is now being employed in primary and early syphilis also.

Results in tuberculosis have been less fortunate. "Experiments with thirty-four cases of pulmonary tuberculosis would indicate that fever therapy is of no definite value and sometimes harmful. . . . Cavities remain unclosed and sputums remain positive. . . . Fever stimulates metabolism and is the equivalent of strong physical exercise which is known to be harmful in tuberculosis. It is not surprising, therefore, that fever therapy is apparently not beneficial in tuberculosis."

Good results were reported in twenty-eight cases of chorea, while in non-specific arthritis the results were generally disappointing. Twenty-five asthmatics of the intrinsic or allergic type were treated and three-fourths of them noted remissions of from one to seven months. "Preliminary observations indicated no appreciable effect in pyelitis, glomerulo-nephritis, epidemic encephalitis or Parkinson's disease. . . ."

"In the hands of skilled nurse-technicians the management of the patient is generally easy. When circulatory collapse very occasionally impends the use of injections of 50 per cent glucose or of oxygen and carbon dioxide are indicated. Repeated applications of ammoniated mercury to the lips prevent herpes, according to Benjamin. Untoward reactions are rare. Physiologic studies would indicate that the degrees of fever generally given are harmless. Already hundreds of patients have been treated, with very few deaths."

Electrically induced hyperpyrexia is indeed a new form of physiotherapy, but that it is making substantial progress cannot be denied. Thus far it has of necessity been confined to a few large clinics and research

institutions with especially trained staffs, though it does not follow that this state of affairs will always exist. Fifteen years ago the electrocardiographic and basal metabolic outfits were huge, clumsy, expensive and so difficult to operate that there were only a few of them. Today they have been so refined and simplified that they are part of the office equipment of every internist. It is not unreasonable to hope that similar progress will be made in artificial fever therapy.

Meanwhile practitioners will do well to watch the course of this therapeutic innovation and to bear in mind Hench's sensible conclusion: "To date the chief value of fever therapy has been in gonorrhea and syphilis, diseases in which the invading organisms may be destroyed. Further observations may indicate its use in other diseases. If fever therapy seems to be suggested for many diseases it should be remembered that fever is nature's reaction, perhaps of defense, in many more diseases than I have listed. The presentation of these preliminary observations should not foster unwarranted claims or lead to haphazard administration, but will indicate the trend of investigation and current opinions on the usefulness of the method."

---

#### A NEW STIMULUS TO CHILD HEALTH WORK

The pediatricians of the State have noted with satisfaction the announcement from the State Department of Health of the appointment of a full-time pediatrician to its personnel. The need for an intensive program having as its aim the better care of children has long been felt by the pediatricians of this country. The White House Conference on Child Health emphasized the existent need and prepared and published a voluminous literature of its findings, with recommendations for future action. This went far in focusing the attention of physicians, social workers, educators and other groups interested in the welfare of children on this problem.

In 1930 the American Academy of Pediatrics was organized to carry on the work already begun by the White House Conference. The Academy has since grown to be the largest group of pediatricians in the world, having at the present time a mem-



bership of approximately one thousand, all specialists in diseases of children. This group has from the beginning offered to lend its assistance to the health departments of the various states and other interested agencies in organizing a program of education in modern methods of child care. Refresher courses have been given in many states and have met with general approval. At the same time the cooperation of such lay groups as parent-teacher associations has been obtained. All this has had the effect of reawakening interest in this important subject.

The Health Department of Alabama has always been keenly conscious of the importance of an adequate program of child care and under the leadership of the health officer has done everything possible with the limited means at its disposal. It had in its county units the necessary machinery to put such a program in operation but did not have sufficient appropriation to make expansions which were necessary in attacking this major problem.

One of the major enactments of the present administration in Washington was the passage of the Social Security Act. This legislation provided, among other things, a greatly increased appropriation for child and maternal welfare, to be administered by the Children's Bureau of the Department of Labor. Each state was allotted a sum of money to aid in instituting a program under the direction of the State Department of Health. Before the allotment was made available it was necessary for each state to submit its proposed plan of financing and administration to the Children's Bureau. Alabama was one of the first to submit its plan which received prompt approval. The appointment of a full-time pediatrician to act in a consultative and educational capacity has resulted from this.

In addition to the general state program, the Children's Bureau has chosen Jefferson County for a demonstration center to serve as a national model for like communities. Funds have been granted the State Health Department to carry on this demonstration, and the organization of it is now going forward.

The physicians of Alabama should take pride in the fact that we have a forward

looking Department of Health, an organization which is the envy of most of the other states of the Union and which makes it possible to carry out any program of public health provided the necessary funds are furnished. It is hoped that the profession of the State will lend its sympathetic aid in carrying out this program of child health.

#### DOSAGE FOR ANTIRABIES TREATMENTS

Numerous inquiries have been received by the State Department of Health concerning the dosage of antirabies treatments in children of one year or younger. The Semple treatments distributed contain 2 cc. of the vaccine in each ampoule; and fourteen doses—or one complete treatment—are packed in a box. The State Department of Health has recommended that *these treatments be given in full regardless of the age of the child*. In other words there should be no reduction in the amount or the number of doses to be administered even though the child be one year or younger. It has been the experience of the Department that children under six months of age tolerate this dosage equally as well as adults. For this reason no proportionate reduction in dosage is recommended for young children.

**Protamine Insulin**—It might seem advisable to call the attention of the profession to a new insulin preparation which, while not yet on the market, will certainly appear in a comparatively short time. The drug, a protamine preparation of insulin, has been in use now in most of the large clinics throughout the country for some months and has stood the test of practice. This preparation of insulin has the very decided advantage of being prolonged in its action. . . . The new insulin has a mild but continuous effect. The diabetic patient in the future may, in most instances, get along satisfactorily with the old insulin but for certain individuals it is more often likely that the insulin they take will have to be tailor-made, a combination of the old insulin and the new insulin protamine, properly adjusted to their individual requirements.—*Ed., New Orleans M. & S. Jour., June '36.*

## TRANSACTIONS OF THE ASSOCIATION

### 1936 SESSION

PROCEEDINGS OF THE ANNUAL MEETING OF THE MEDICAL ASSOCIATION OF THE STATE OF ALABAMA, HELD AT MONTGOMERY, APRIL 21-23, 1936.

First Day, Tuesday, April 21

The Medical Association of the State of Alabama convened in the ballroom of the Jefferson Davis Hotel and was called to order at 10:00 A. M. by the President, Dr. C. A. Thigpen of Montgomery.

Invocation was offered by Reverend Richard Wilkinson, D. D., Pastor, St. Johns Episcopal Church, Montgomery.

Addresses of welcome were delivered by Hon. William P. Screws, Commissioner of the City of Montgomery; and Dr. J. Harold Watkins, President, Montgomery County Medical Society.

Dr. E. D. McAdory of Cullman, Senior Vice-President, presented the President, Dr. Thigpen, who addressed the Association on the subject, "The Importance of the Trained Physician to Modern Society." The address appears on page one in this issue of the Journal.

The Vice-Presidents of the several divisions presented their reports, each being referred, in its turn, by President Thigpen, to the Board of Censors. The reports follow:

#### *Report of Vice-President McAdory*

##### Northwestern Division

The societies composing the Northwestern Division have been fairly active during the past year, especially those of Jefferson, Morgan, Tuscaloosa and Colbert Counties. All of these have had special programs; some of them several times. I visited some of the societies in the district but it seemed impossible to visit them all.

The Northwestern Division had one meeting, with the Walker County Medical Society as host. This was a very fine gathering and some one hundred or more doctors were present. The program was as follows:

Called to order at 2:00 P. M., by Dr. E. D. McAdory, Cullman.

Invocation: Rev. J. R. Turner, Pastor of First Methodist Church, Jasper.

Welcome Address: Dr. W. M. Cunningham, Jasper.

Response: Dr. W. G. Harrison, Birmingham.

The Nervous Heart: Dr. T. R. Harrison, Vanderbilt University, Nashville, Tennessee.

Cardiospasm: (Lantern Slides)—Dr. Richmond McKenny, Chief of Oto-Laryngology, University of Tennessee, Memphis, Tennessee.

The Trend of Modern Medical Practice: Dr. J. S. McLester, President, American Medical Association, Birmingham.

At the conclusion of the program the Walker County Medical Society served a delicious banquet in the basement of the First Methodist Church.

#### *Report of Vice-President Corwell*

##### Southwestern Division

I beg to make the following report as Vice-President of the Southwestern Division:

There have been no district meetings during the year, and there has been inactivity in most of the counties due principally to carelessness about meetings. I have visited only a few counties in the district.

Mobile is the largest and seems to be the most active; it has had 12 meetings with an average attendance of about half the membership. Six papers were read during the year, authors and titles being as follows:

Dr. O. L. Chason, "Activities of the Health Department."

Dr. E. B. Frazer, "Ileitis."

Dr. C. H. Moore, "Scope of Neurology."

Dr. G. F. Carroll, "Progressive Post-Operative Gangrene."

Dr. M. A. Lischkoff, "Hoarseness."

Dr. L. J. Menville, "Radiation Therapy."

Dallas County is next in size and activity, with an average attendance of 15 members. Six papers were read during the year.

Escambia County has had no meetings and is most inactive, as are many other counties in the division. Effort is being made to stimulate them as much as possible.

#### *Report of Vice-President Salter*

##### Northeastern Division

Four meetings with scientific programs were held in the district during the year from April 1935 to April 1936—one at Scottsboro, with Dr. Rayford Hodges presiding; the second at Gadsden, with Dr. E. H. Cross in the chair; the third at Alexander City; and the fourth at Anniston.

A total of 20 scientific papers of high order were read and discussed at these meetings. The total attendance at the four meetings was about 160 members and visitors.

Four of the 17 counties in the district are very active; namely, Calhoun, Etowah, Talladega and Madison. Seven of the remaining 13 are alive and fairly active. The remaining six have one or two meetings a year.



There has been a decrease in membership in the district. I suggest that the State Board of Censors appropriate a sufficient sum to defray the expenses of the several vice-presidents in order that each vice-president may make at least one visit to each of the counties in his district. The Association belongs to the medical profession and not to the officers of the Association. With expenses paid I believe the vice-presidents would visit every county. I believe this is necessary to maintain membership and interest.

### *Report of Vice-President Hayes*

#### Southeastern Division

It is with much appreciation that I acknowledge the honor that was conferred upon me at the last meeting of the Association in Mobile by elevating me to the Vice-Presidency of the Southeastern Division. In assuming these duties I was not unmindful of the responsibility and of my own inability to measure up to the requirements without the loyal support of all members in the district.

During the past year three district meetings were held. On July 11th, 1935 the first of these meetings was held at Enterprise, with the Coffee County Medical Society as host. This was a good meeting and quite well attended. At the noon hour the society provided a sumptuous luncheon at the Rawls Hotel, which was much enjoyed by those present.

The second meeting of the district was held with the Lee County Medical Society at Opelika, November 14. The special address of the day was made by Dr. Stewart Roberts of Atlanta, who used the subject, "The Heart and Hypertension." This was a most practical and helpful presentation. Besides Dr. Roberts' paper there were several other topics most interestingly presented. At the noon hour the Lee County Medical Society entertained with a very bountiful luncheon at the Hotel Clements.

On the whole, quite satisfactory work has been done during the past year by the various county medical societies constituting the Southeastern Division. However, some of these societies do not hold meetings as often as they should. With the progress which has been made in the development of our road and highway systems, every county medical society in this State should be sufficiently alert and interested in the scientific advances made in medicine and public health to justify the holding of regular meetings at least once a month.

An excellent way of stimulating attendance at meetings is for the president and secretary to arrange for an out-of-county guest speaker to appear on the program, with possibly an informal social gathering to be held afterwards.

As Vice-President I would strongly urge upon presidents and secretaries of County Medical Societies an appreciation of the responsibility which rests on them for making each meeting sufficiently attractive to entice members into regular attendance.

The report of the Secretary, after presentation, was referred to the Board.

### *Report of the Secretary*

The Secretary begs to submit the following report: Since the last meeting Dr. William Henry Oates, Mobile; Dr. William Thomas Pride, Madison; Dr. Benjamin Britt Simms, Talladega; and Dr. James Perry Turner, Cropwell, Life Counsellors; and Dr. George W. Williamson, Hartford, Active Counsellor, have died. Death has claimed, also, Members William H. Acton, Thomas M. Blake of Double Springs, Russell Callen, Andrew C. Cameron, William A. Campbell, David H. Chilton, John C. Christopher, Herbert P. Cole, Sam T. Cousins, H. T. Dickens, Emmett L. Fuller, Clarence Gilder, John H. Hastie, John T. Hunter, James D. Jones, Albert W. Lane, John W. Lee, John P. Long, William Joseph Love of Opelika, Monroe A. Maas, Hezekiah L. Martin, Clarence W. Mixson, Andrew Jackson Morris, Edgar Rand, George H. Searcy, Horace O. Sparks, Henry Swedlow, and Charles W. Wright. May their souls rest in peace! For their loved ones the Association expresses sympathy.

The membership of the Association, as enrolled April 1, 1936, is 1,455—an increase of six in the number recorded in my last annual report to you. The total number of physicians in Alabama, according to the rolls of County Medical Societies, is 1,884.

At the last meeting, eight members were elected to the College of Counsellors. All have accepted the honor, have complied with the requirements of the Constitution, and, at the proper time, should be placed upon the Roll of Active Counsellors. Vacancies in the College that will present at this session will be announced, according to custom, at the close of tomorrow morning's session. Let it be sufficient now for your Secretary to state that there will be clear vacancies in the third, fifth, sixth and ninth districts.

Credentials, duly executed, have been transmitted to the Association's delegates to the American Medical Association, convening in Kansas City, May 11-15. The delegates are Drs. J. N. Baker and A. A. Walker, appointed by President Thigpen to serve during the 1936 and 1937 sessions of the national body.

President Thigpen appointed, also, on the Board of Censors, Dr. W. D. Partlow to succeed Dr. George Searcy, deceased; and Dr. K. A. Mayer to succeed Dr. D. T. McCall, resigned.

It will be a prerogative of the incoming President to fill vacancies as follows on the Committees of the Association:

- Committee on Mental Hygiene—One to succeed Dr. E. L. McCafferty.
- Committee on Maternal and Infant Welfare—One to succeed Dr. J. M. Weldon.
- Committee on Prevention of Cancer—One to succeed Dr. H. M. Simpson.
- Committee on Prevention of Blindness and Deafness—One to succeed Dr. Lucien Brown.

The following officers are to be elected at this meeting: A president, a vice-president for the Northwestern Division, two censors for five years to succeed Drs. M. Y. Dabney and K. A. Mayer,



whose terms have expired; one censor to fill the unexpired term of Dr. George Searcy, deceased; and counselors as follows: Two to succeed Drs. George W. Williamson and George Searcy, deceased; three to succeed M. L. Shaddix, W. L. Cowles and J. S. Hough who have changed place of residence; six to succeed J. G. Bedsole, J. D. Dowling, E. W. Rucker, Walter F. Scott, E. S. Sledge and R. W. Waldrop, whose second terms of seven years have expired; and three to succeed W. C. Hatchett, Lloyd Noland and G. G. Oswalt, whose first terms of seven years have expired.

Your Secretary has responded to all calls for information, has supervised the publication and distribution of The Journal and Transactions, and has endeavored to perform, acceptably, all the duties pertaining to the office. Expenses incident thereto constitute a part of the Treasurer's report.

To those who have cooperated so willingly in the discharge of his responsibilities, the Secretary is indebted.

Respectfully submitted,  
Douglas L. Cannon, Secretary.

The Treasurer's report was submitted by Dr. J. U. Ray, Woodstock.

Report of the Treasurer

ASSOCIATION YEAR 1935-1936

GENERAL ACCOUNT

Receipts

|   |             |
|---|-------------|
| Balance as of April 16, 1935..                  | \$ 8,397.36 |
| Dues from 97 Counsellors<br>(Exhibit A) .....   | 970.00      |
| Dues from County Societies<br>(Exhibit B) ..... | 3,945.00    |
| Delegate fees (Exhibit C).....                  | 532.00      |
| Miscellaneous receipts (Inter-<br>est) .....    | 128.19      |

Disbursements

|   |    |                         |
|---|----|-------------------------|
| Badges .....  | \$ | 33.82                   |
| Brown Printing Co.:<br>Stationery .....                     |    | 57.99                   |
| Transactions .....  |    | 539.90                  |
| Expense, Delegates to A. M.<br>A. ....                      |    | 137.50                  |
| Division meetings...  |    | 98.79                   |
| Legal proceedings ...                                       |    | 95.30                   |
| Postgraduate<br>courses .....                               |    | 255.00                  |
| Treasurer's bond ....                                       |    | 25.00                   |
| Funds invested .....  |    | 5,000.00                |
| Postage, Secretary .....                                    |    | 87.67                   |
| Treasurer .....   |    | 22.34                   |
| Salaries, Secretary .....                                   |    | 600.00                  |
| Treasurer .....   |    | 300.00                  |
| Subscriptions to Journal<br>(Counsellors and Members) ..... |    | 2,826.00                |
| Sundry expense and refunds ...                              |    | 41.50                   |
|   |    | <hr/>                   |
|   |    | \$13,972.55 \$10,120.81 |

|   |                         |
|---|-------------------------|
| Balance on hand April<br>21, 1936 ..... | 3,851.74                |
|   | <hr/>                   |
|   | \$13,972.55 \$13,972.74 |

Recapitulation

|                                      |             |
|--------------------------------------|-------------|
| Cash on hand April 16, 1935 \$       | 8,397.36    |
| Receipts 1935-1936 .....             | 5,575.19    |
|                                      | <hr/>       |
| Disbursements 1935-1936 .....        | 10,120.81   |
| Balance on hand April 21, 1936 ..... | \$ 3,851.74 |

Exhibit A

Counsellors and Counsellors-Elect Remitting Dues

|                       |                   |
|-----------------------|-------------------|
| Abernethy, F. L.      | Dabney, M. Y.     |
| Acker, P. J. M.       | Dowling, J. D.    |
| A'lison, J. F.        | Dupree, M. W.     |
| Alison, S. B.         | Gilder, G. S.     |
| Anderson, T. J.       | Gragg, V. J.      |
| Ashcraft, V. L.       | Granger, F. G.    |
| Bailey, E. B.         | Greer, W. H.      |
| Beard, R. B.          | Gresham, W. A.    |
| Bedsole, J. G.        | Hagood, M. H.     |
| Burdeshaw, S. L.      | Hatchett, W. C.   |
| Caldwell, E. V.       | Hayes, C. P.      |
| Cannon, D. L.         | Hill, R. L.       |
| Carter, W. R.         | Hodges, Rayford   |
| Chandler, J. C.       | Hollis, J. S.     |
| Chenault, E. M.       | Hough, J. S.      |
| Chenault, F. L.       | Ralls, A. W.      |
| Cowles, W. L.         | Redden, R. H.     |
| Craddock, F. H.       | Riser, W. H.      |
| Cryer, G. A.          | Rountree, W. S.   |
| Howell, W. E.         | Rucker, E. W.     |
| Hubbard, T. B.        | Salter, W. M.     |
| Jackson, A. A.        | Scarbrough, B. C. |
| James, N. G.          | Scott, W. F.      |
| Jordan, S. E.         | Searcy, G. H.     |
| Kirkpatrick, S.       | Searcy, H. B.     |
| Leach, Sydney         | Shaddix, M. L.    |
| Ledbetter, S. L., Jr. | Shamblin, J. L.   |
| Lester, B. S.         | Shropshire, C. W. |
| Lewis, W. A.          | Sledge, E. S.     |
| Lightfoot, P. M.      | Smith, G. R.      |
| Long, Clarence        | Smith, R. A.      |
| Lull, Cabot           | Speir, P. V.      |
| Martin, J. A.         | Tankersley, James |
| Martin, J. C.         | Taylor, W. R.     |
| Mason, E. M.          | Thacker, V. J.    |
| Mason, J. M.          | Tillman, J. S.    |
| Mayer, K. A.          | Waldrop, R. W.    |
| McAdory, E. D.        | Walker, A. A.     |
| McCall, D. T.         | Walls, J. J.      |
| Moore, D. S.          | Walsh, G. F.      |
| Moxley, J. B.         | Weldon, J. M.     |
| Newman, S. H.         | Welch, S. H.      |
| Noel, W. E.           | White, A. L.      |
| No'and, Lloyd         | Wilkerson, F. W.  |
| Nolen, J. A. M.       | Williams, M. J.   |
| Oswalt, G. G.         | Williamson, G. W. |
| Parker, L. D.         | Wood, W. D.       |
| Perdue, J. D.         | Wright, D. H.     |
| Price, A. B.          |                   |

*Exhibit B*

|            |          |
|------------|----------|
| Autauga    | \$ 15.00 |
| Baldwin    | 30.00    |
| Barbour    | 33.00    |
| Bibb       | 33.00    |
| B'ount     | 36.00    |
| Bullock    | 27.00    |
| Butler     | 36.00    |
| Calhoun    | 117.00   |
| Chambers   | 48.00    |
| Cherokee   | 9.00     |
| Chilton    | 33.00    |
| Choctaw    | 24.00    |
| Clarke     | 21.00    |
| Cleburne   | 6.00     |
| Coffee     | 24.00    |
| Colbert    | 45.00    |
| Concuh     | 15.00    |
| Coosa      | 15.00    |
| Covington  | 39.00    |
| Crenshaw   | 27.00    |
| Cullman    | 33.00    |
| Dale       | 27.00    |
| Dallas     | 99.00    |
| DeKalb     | 45.00    |
| Elmore     | 45.00    |
| Escambia   | 36.00    |
| Etowah     | 123.00   |
| Fayette    | 18.00    |
| Franklin   | 48.00    |
| Geneva     | 42.00    |
| Greene     | 9.00     |
| Hale       | 15.00    |
| Henry      | 27.00    |
| Houston    | 75.00    |
| Jackson    | 42.00    |
| Jefferson  | 966.00   |
| Lamar      | 33.00    |
| Lauderdale | 66.00    |
| Lawrence   | 27.00    |
| Lee        | 51.00    |
| Limestone  | 30.00    |
| Lowndes    | 12.00    |
| Macon      | 24.00    |
| Madison    | 84.00    |
| Marengo    | 39.00    |
| Marion     | 33.00    |
| Marshall   | 54.00    |
| Mobile     | 270.00   |
| Monroe     | 33.00    |
| Montgomery | 198.00   |
| Morgan     | 63.00    |
| Perry      | 21.00    |
| Pickens    | 33.00    |
| Pike       | 51.00    |
| Randolph   | 54.00    |
| Russell    | 12.00    |
| Shelby     | 48.00    |
| St. Clair  | 33.00    |
| Sumter     | 30.00    |
| Talladega  | 60.00    |
| Tallapoosa | 39.00    |
| Tuscaloosa | 117.00   |
| Walker     | 93.00    |
| Washington | 12.00    |
| Wilcox     | 27.00    |
| Winston    | 27.00    |

Clay County did not remit dues.

*Exhibit C*

## Delegate Dues Collected at 1935 Meeting

|            |         |
|------------|---------|
| Autauga    | \$ 8.00 |
| Baldwin    | 8.00    |
| Barbour    | 8.00    |
| Bibb       | 8.00    |
| B'ount     | 8.00    |
| Bullock    | 8.00    |
| Butler     | 8.00    |
| Calhoun    | 8.00    |
| Chambers   | 8.00    |
| Cherokee   | 4.00    |
| Chilton    | 8.00    |
| Choctaw    | 8.00    |
| Clarke     | 8.00    |
| Coffee     | 8.00    |
| Colbert    | 8.00    |
| Concuh     | 8.00    |
| Coosa      | 4.00    |
| Covington  | 8.00    |
| Cullman    | 8.00    |
| Dale       | 8.00    |
| Dallas     | 12.00   |
| DeKalb     | 8.00    |
| Elmore     | 8.00    |
| Escambia   | 8.00    |
| Etowah     | 8.00    |
| Fayette    | 8.00    |
| Franklin   | 8.00    |
| Geneva     | 8.00    |
| Hale       | 8.00    |
| Henry      | 8.00    |
| Houston    | 8.00    |
| Jackson    | 8.00    |
| Jefferson  | 28.00   |
| Lamar      | 8.00    |
| Lauderdale | 8.00    |
| Lawrence   | 8.00    |
| Lee        | 8.00    |
| Limestone  | 8.00    |
| Lowndes    | 8.00    |
| Macon      | 8.00    |
| Madison    | 8.00    |
| Marengo    | 8.00    |
| Marion     | 8.00    |
| Marshall   | 8.00    |
| Mobile     | 12.00   |
| Monroe     | 8.00    |
| Montgomery | 16.00   |
| Morgan     | 8.00    |
| Perry      | 8.00    |
| Pickens    | 8.00    |
| Pike       | 8.00    |
| Randolph   | 8.00    |
| Russell    | 8.00    |
| Shelby     | 8.00    |
| St. Clair  | 8.00    |
| Sumter     | 8.00    |
| Talladega  | 8.00    |
| Tallapoosa | 8.00    |
| Tuscaloosa | 8.00    |
| Walker     | 8.00    |
| Washington | 8.00    |
| Wilcox     | 8.00    |
| Winston    | 8.00    |

Clay, Cleburne, Crenshaw and Greene did not remit dues for delegates.

Cherokee and Coosa remitted for one.



JOURNAL ACCOUNT

April 1, 1935-March 30, 1936

*Receipts*

|                              |            |            |
|------------------------------|------------|------------|
| Balance as of March 30, 1935 | \$1,143.71 |            |
| Advertising                  | 3,203.27   |            |
| Subscriptions—Members        | 2,826.00   |            |
| Non-Members                  | 18.00      |            |
| Sundry receipts              | 6.84       | \$7,197.82 |

*Disbursements*

|                             |            |            |
|-----------------------------|------------|------------|
| Printing                    | \$4,589.70 |            |
| Reporting, annual meeting   | 220 55     |            |
| Salaries—Ohme               | 420.00     |            |
| Ray                         | 100.00     |            |
| Wilkerson                   | 300.00     |            |
| Sundry refunds              | 7.73       | \$5,638.38 |
| Cash on hand March 30, 1936 | 1,559.44   |            |
|                             | \$7,197.82 | \$7,197.82 |

*Recapitulation*

|                             |            |            |
|-----------------------------|------------|------------|
| Receipts                    | \$7,197.82 |            |
| Disbursements               |            | 5,638.38   |
| Cash on hand March 30, 1936 |            | 1,559.44   |
|                             | \$7,197.82 | \$7,197.82 |

Reports of Committees being the next order of business, they were submitted as follows:

*Committee of Publication*

Fred Wilkerson, Chairman

The Journal will embark on its sixth year July 1, 1936. The character of its advertising sections and papers speaks for itself. It will be the endeavor of the Committee of Publication to give the Association a readable magazine at all times.

As an adjunct to the Journal and a reprint therefrom, an annual volume of Transactions was furnished all members of the Association.

The financial aspects of these items have been dealt with in detail in the Treasurer's report.

*Public Relations*

John A. Martin, Chairman

Little has happened in Alabama during the past twelve months to seriously disturb the economic or professional status of physicians in this State, yet those whose duty it is to guard against encroachment on the rights of the physicians have had occasion several times to observe things in the offing which might become an entering wedge of serious menaces to our professional welfare. Very few physicians have given serious thought to the position occupied by the medical profession. The position of the medical profession in American business, social and economic life is as typically American as freedom of speech, freedom of the press and freedom of religion. As long as we are interested in American liberty, we should be interested in guarding our profession against any system which is un-American. Changes in our economic and social life may require some variation in our manner of practice. Since no other nation has a business, social and economic history similar to ours, no other country's system of medical practice would

suit American standards of practice. We have a birthright to protect which is more valuable than the average member of the profession realizes.

The work of this committee for the past year has been keeping up with what is going on in our State and other states. Locally we are confronted with a new federal law, the Social Security Act. This act is a wide departure from the usual tendencies of American legislation. It is a definite step towards socialistic legislation. It proposes to relieve certain situations in our economic structure which result in human suffering. The act is not thoroughly understood by those who advocated and voted for it. It is contradictory in several respects and is imposing an extra burden of taxation which will eventually fall on the poor wage earner. It is difficult to understand how this act can be held constitutional. Its local set-up will require the employment of people in every community for its administration. People not medically trained, backed by tax money, dealing with human welfare, will probably be at odds with the profession if our experience during FERA is worth remembering. It behooves the local units of the American Medical Association to see that the proper persons are employed in the administration of the act.

While we have been fortunate in Alabama, there has been much agitation going on in other parts of our great country. Most of you are probably familiar with the debates on health measures which have been broadcast over national hook-ups. Those who are fighting our profession are taking advantage of every opportunity to broadcast their Utopian schemes. I am glad to say that the American Medical Association has met this challenge, but it would be easier to combat such propaganda if physicians in each state would take up the fight and carry on in their own territory.

I wish to call to your attention that these agencies clamoring for reform in medical services are agitating their cause enough to have their programs debated among college and high school students. They are sowing seeds of discontent in the most fertile soil in America. Physicians in every community should emphasize their own work enough that there should be no interest in such debates in that community.

In spite of all the propaganda put out by a few well directed, wealthy agencies for reform there still remains a public apathy towards matters of health. Every practitioner knows that one of his greatest problems is to get his patient to carry out his recommendations for maintaining and preserving good health. Collectively, the same attitude prevails. Political groups are only interested in health matters as a revenue producer. Individuals and political groups make less allowance for sickness than for any other necessity of life, yet they know that sickness comes to all people. The physicians as a distinct group of citizens should not be penalized for the negligence or misfortunes of others.

There are several matters which affect physicians directly or indirectly which we would like to call to your attention:

1. A recent study (Dr. E. L. Thorndike, Columbia University) showed that we pay more for entertainment, including intellectual pleasures and

the sensory pleasures of sight, sound, taste and smell, than for protection against cold, heat, wet, animals, disease, criminals and other bad people and pain. Less than one-third of what we spent went for wants which must be satisfied to keep the human species alive and self-perpetuating. The rest went chiefly to keep us amused and comfortable physically, intellectually, morally and especially socially.

2. Approximately 270 millions of the annual business of pharmacies comes from physicians (Dec. 2, 1935 Issue, Drug Topics). Of that amount 170 millions represents the cost of 200 million prescriptions. If physicians directly or indirectly are responsible for the success of such a large and necessary business as pharmacy, there should be a closer cooperation for the benefit of patient, druggist and physician. There is much criticism in the profession over this question.

3. Legal testimony in the last few years has given the medical profession a black eye, especially in sensational cases which are played up by the newspapers. It is only fair that the medical profession demand of prosecution and defense an agreement of facts before the trial begins. These facts will be accepted by both sides and the physicians testifying on both sides will not be humiliated by their interpretation of these facts.

4. A recent survey shows little tendency of state legislatures or assemblies to agitate compulsory insurance schemes. Most of them are trying to conform to the Social Security Act. This lack of agitation should not cause us to lessen our interest in our own welfare.

5. Physicians as a group are criticized by business people as being poor managers. There are probably very few physicians in this State who actually know their overhead cost of practicing medicine. In combating any scheme of health insurance or health plans, it is necessary to have facts of overhead cost to refute arguments for cheaper medical service. We feel that our State Journal should make some effort to circularize the necessity of having actual cost of overhead. We have had need of this information before and may need it again soon.

6. We would like to have printed in our State Journal what federal agencies pay for medical care and how payments are made. Many physicians are not getting paid what rightfully belongs to them.

7. There are many insurance schemes being advocated over our country. There are nine separate types of insurance plans now in operation long enough to get some idea of their success and the reasons for it. A study of these methods will give you most of the points to be considered in any or all plans of health insurance. We offer you a brief display showing a study of these nine plans.

The profession should at all times study all problems which affect its patients economically so that the best relations may be maintained for the promotion of the welfare of both physician and patient. Some medical societies (notably Wayne County at Detroit) have worked out plans whereby the physician can properly care for his patients under any and all circumstances. Every community has its particular problems. The physicians in

each community, by uniting in their efforts and working through their organization, can find ways and means of solving their problems. A third party in the patient-doctor relation never seems to solve the problem.

The legislature in this State has allowed hospital insurance and now the Alabama Hospital Association is working on plans for the solution of hospital problems. Hospitals and physicians are dependent on each other. The Hospital Association should constantly keep the profession informed of its activities through our State Journal.

In conclusion, let us impress upon every member of this Association that lack of interest and activity in the problems affecting our profession is the surest way to get a change in our system of practice. Each individual patient can be made a loud speaker extolling the value of our profession if we do our work well.

### *Mental Hygiene*

Frank A. Kay, Chairman

During the year 1935-1936 your Committee on Mental Hygiene has endeavored to carry on its work in practically the same manner that it has in the past few years. To record each individual effort, to disseminate the gospel of mental health, to coordinate the various efforts of groups and organizations of like interests and to offer leadership looking toward a more concrete solution of problems relating to the mind would require many words and likely prove tiresome to most listeners.

Suffice it to say that we have lent cooperation and support to the Alabama Mental Hygiene Society, the Alabama Educational Association and the Alabama State Nurses Association by having some member of the committee take an active part in the annual meetings of these organizations.

Students of the various colleges and universities of the State through annual visits to Bryce Hospital and the Partlow State School, fostered and arranged by Dr. W. D. Partlow, receive practical instruction in the problems and possibilities of psychiatry and social medicine.

Last year a program for sterilization of heritable misfits, initiated by Dr. Partlow and sponsored by your committee and other interested groups, failed to become a law.

This year we are beginning to plan and look forward to the establishment of a clinic or clinics for mental hygiene. Such a step merits serious consideration. The value and need for such clinics is keenly recognized by those who handle psychiatric and social problems. Out of forty-eight (48) states, Alabama is listed among the twelve having no such facilities in any form; in the South, Alabama, Florida, Mississippi and West Virginia stand out as deficient in this respect. Social welfare agencies, schools, juvenile courts, physicians and parents are confronted with problems of behavior, maladjustment and incipient mental disease for which at the present time there are no organized facilities for scientific help and relief.

Alabama sorely needs some effective way of handling extramural psychiatric cases. With what agencies such facilities should be linked is an open



question. The Act passed by the 1935 Legislature creating a State Department of Public Welfare makes legal provision for "a mental hygiene program of non-institutional care in the interest of preventive work and general mental hygiene activities." Up until the present time no funds have been available for this phase of work. Dr. A. H. Collins, Commissioner of Public Welfare, and his staff are vitally interested in a program of adequate state-wide mental hygiene, but is practical enough and wise enough to know that such a program must have a solid foundation and sufficient funds in sight for its maintenance before its initiation becomes advisable. He has made a thorough investigation of the possibility of securing help in the form of federal subsidies for this sort of work under the Social Security Act. While certain sums are available through the Children's Bureau they would not be adequate for the establishment of a full-time unit. Such a clinic with a full-time psychiatrist, full-time psychologist and full-time psychiatric social worker would cost from \$15,000 to \$20,000 a year. Since the establishment of the first child guidance clinic in Chicago twenty-five years ago two hundred such clinics have come into being. They are now serving American children in other states and other communities in such an acceptable manner as to have won an enviable and secure place in the program of mental hygiene. Child guidance so practiced has proved that it can and does relieve specific tensions in children, free them from crippling demands, adjust their maladjustments and help them to develop into more normal and more useful citizens.

Your committee is not unmindful of the embarrassed financial condition of the State and of the needs of the already established agencies which are forced to function inadequately because of insufficient budgets, but we are keenly aware that progress must go on, that a start must be made at some time, be it ever so dark, if Alabama is to retain its place among the states of this nation.

Alabama has an admirable social welfare organization, a noteworthy and efficient public health system, its hospitals for the insane have long honored and enviable records, it has outstanding institutions of learning, effective juvenile courts, training schools doing most useful work and penitentiaries that are models for other states.

Associated in some manner with these agencies for social betterment we need effective mental hygiene fostered and practiced through some sort of psychiatric clinic. Such a clinic would not only serve patients but by operating in cooperation with other professional groups become a central bureau for the promotion of mental hygiene, an educational aid for social workers, physicians and citizens, and an inspiration to all who seek a happy and well integrated commonwealth. We implore the physicians of this Association to think seriously along these lines, to ask questions and make demands of your committee and when you are convinced of the soundness of this project help those working toward this end to win public support for it.

In closing the committee wishes to express to Dr. W. D. Partow its appreciation for much sound counsel and support and to Dr. J. N. Baker, who is

always enthusiastically ready to use his office and his time and efforts in promoting any worthy cause of organized medicine.

## *Committee on Maternal and Infant Welfare*

A. E. Thomas, Chairman

### A. Maternal Welfare

The Committee on Maternal and Infant Welfare during the past year has confined its activities to the program outlined in its original report. We are glad to state that the "Stillbirth Certificate" should now be in every registrar's hands. The success of this procedure will depend entirely upon cooperation on the part of the medical profession.

In 1935 the maternal death rate for the United States (provisional figures) was 6.0 per 1,000 live births, in 1934, 6.2. The rate for 1935 in Alabama (provisional) was 6.6 and in the preceding year—1934—6.2, both rates being higher than the national rate.

In 1934 there were 64,034 births which, with the single exception of 1927—67,699—was the greatest number ever recorded.

In 1934 there were 410 maternal deaths recorded, which was 19 less than the figure of the preceding year, and decidedly the lowest of record. In general, there has been a steady decline in the rate since 1929. An upward turn in the rate (62.6) was recorded in 1935. Provisional figures for 1935 show 405 maternal deaths.

Several counties had very high white maternal death rates; those having rates of 100 and above were Barbour, Escambia, Hale, Marion and Monroe.

The specific causes of the maternal death rates were as follows:

Puerperal septicemia—one out of every five white deaths.

Puerperal albuminuria and eclampsia—27% of whites and 30% colored.

Puerperal hemorrhage caused 13 of the white deaths and 9 colored.

Abortion was responsible for approximately 17% of both white and colored deaths.

### ATTENDANT AT BIRTHS

In 1934 there were 23,081 mothers, residents of Alabama, who were attended by midwives and others not physicians, this making more than one out of every three births unattended by a physician. Forty-thousand nine-hundred ninety-four were attended by physicians and of this number only 14.4 per cent were hospitalized and the remaining 85.6 per cent were cared for in the home. Of the white mothers 5,205 were attended by midwives and others not physicians.

There were 3,154 stillbirths in 1934, the colored rate being approximately double that of the white.

We have in Alabama some 2,000 physicians who delivered 40,994 babies with an estimated total of 260 maternal deaths. There is one clinic in the United States that delivered 5,000 babies last year in the homes under the most adverse circumstances with a single mortality. These babies were deliv-

ered by medical students with two directors, both very young doctors.

Dr. George A. Denison and his committee are making a thorough study of maternal mortality over a five-year period in Jefferson County. It is regrettable that their findings seem to reveal lack of interest, bad judgment, improper technique and, in some instances, negligence on the physician's side of the ledger. For example:

Six deaths from placenta previa, four preventable.

Six deaths from premature separation of the placenta, three preventable.

Of twenty-nine deaths from postpartum hemorrhage, midwives were responsible for one and physicians for nineteen that were preventable.

Of the 189 patients whose deaths occurred after viability (28 weeks), 101 or 88.5 per cent received some type of operation. Of those receiving operations, the cause of death was attributed to some error on the part of the physician in 56%; the improper performance of the operation itself was responsible for 22 deaths.

How may many of these deaths be prevented? By prenatal care judiciously and faithfully carried out. However, prenatal care isn't all. The physician's obstetrical judgment is put to a test in every case. If the pelvis is in question, limit the examinations to the minimum, employing rigid asepsis and preferably rectal examinations. In case of hemorrhage, early transfusions; conservatism in eclampsia; cesarean section limited to those cases with a clear cut obstetric indication; forceps should never be used except when clearly indicated and possibly when there is a definite uterine inertia with complete dilatation and a perfectly normal position and passage, with the presenting part engaged. It is comparatively simple to pack the uterus, and many postpartum hemorrhages can be checked by so doing. The uterus should be emptied in hyperemesis cases only after reasonable treatment has failed.

With funds appropriated through the Social Security Act forty-one public health nurses have been added through the State Department of Health to work with the various county health units in the interest of maternal and child health. An important function of the public health nurse is education of expectant mothers in the importance of proper prenatal, delivery, and postnatal service. They can be of inestimable service to the medical profession if we will only take advantage of the opportunity that presents. They can do much toward the elimination of the unfit midwife, take blood pressure, have urinalyses done and report conditions to physicians. If they direct prenatals to physicians for medical examination and we receive them with indifference, making no examination, or one that is so superficial that it is apparent to the individual, we may not expect to contribute materially to the reduction in our maternal mortality rate due to lack of prenatal service.

In at least two counties plans are under way for the organization of prenatal clinics for those ex-

pectant mothers who are unable to secure the services of a physician. Postpartum examinations and advice will likewise be given at these clinics. A physician and a nurse will be in attendance at each clinic session. With the proper spirit of co-operation exhibited between the medical profession, health department and laity, such clinics might be developed in other centers with telling results in our maternal and neonatal mortality rates.

Infant mortality rates have steadily increased since 1932. The provisional rate for 1935 is 67.8 per 1,000 live births.

Better delivery service and greater attention to prenatal care will no doubt markedly reduce the neonatal death rate. Neonatal deaths can so often be attributed to injury at birth, poor obstetric judgment and other conditions involved in delivery over which we should exercise better control.

We should teach the dangers of abortion, whether spontaneous or induced; in early pregnancy this is one of the chief causes of death.

The community should realize and accept a share in the responsibility to provide adequate medical and nursing facilities for maternal care. The profession, through the organized channels of the county board of censors and county health unit, should take the lead in the education program to secure community support for all efforts to provide more adequate maternal and child health services.

It is felt that further study is important if we are to know just what procedures to inaugurate in each county. It has been found through experience in the last two years that the original maternal mortality study form could not be properly filled out because of inadequacy of records. A modified form has therefore been designed with the hope that one will be filled out for each maternal death. Physicians are urged to fill out these forms when maternal deaths occur so that some conclusions can be drawn from a study of them when completed.

#### B. Infant Welfare

The infant mortality rate has increased in each of the past two years, rising from 60.6 per 1,000 live births in 1932 to 65.5 and 67.3 respectively in 1933 and 1934. Attention should be called to the fact that approximately one out of every four infant deaths was due to premature birth.

On account of this rising infant mortality rate, it is gratifying to realize that distinct progress is being made in the maternal and child health program.

Last summer the Children's Bureau picked Alabama as the first State in which to try the refresher courses in pediatrics. This was done under the auspices of the State Medical Association which appropriated \$300.00 to defray the living expenses of the physicians giving the courses. The federal government paid the salaries and cost of transportation. Eight courses, of one week duration each, were given which were on the whole well received. It is hoped that this program will be improved and continued. The cooperation of the physicians in the various communities served is urged.



Alabama was one of the first states submitting a satisfactory plan for a maternal and child welfare program to be carried out with funds furnished by the Social Security Act. The State matched the money furnished by the federal government. Actual field work has already commenced. While the program was meant largely for rural children, the Children's Bureau has selected Birmingham as a demonstration center. The work is being supervised by the State Department of Health rather than by the county unit.

The Social Security Act also provides for the medical care of crippled children. While this part of the program is administered by the Department of Education, on the theory that this work is largely rehabilitation, the State Health Officer is a member of the advisory committee and will have an important part in shaping its medical policies.

The physicians of the State are urged to cooperate with the program as outlined above. Attention is again called to the large number of premature births. Every effort should be made to carry these infants to full term.

### *Prevention of Cancer*

K. F. Kesmodel, Chairman

Your committee has continued to function. As the personnel of the committee has been reduced to three, it was deemed advisable to urge each County Medical Society to appoint a committee on cancer control to take care of activities in its neighborhood. It is believed by the committee that this is the better way to spread information concerning cancer control. However, to date, this committee has been notified of the appointment of only three county committees, these being in the counties where members of the State committee reside. Your committee again urges the appointment of a local committee on cancer prevention in each County Medical Society.

This committee is most anxious to disseminate known facts regarding cancer prevention. It is desired that everyone know that early cancer is curable; that certain lesions are precancerous and must be treated or eliminated if cancer is to be prevented, and the number of cancer deaths reduced; that certain careless deletions in the hygiene of daily life is conducive to the production of malignant lesions. It is the belief of the committee that all physicians should be sufficiently familiar with those conditions and lesions which may become cancerous, that they may warn their patients without frightening them.

This year this committee begins the presentation of its program to lay organizations. It is the plan to have every men's club and every women's club shown the film strip "Fight Cancer with Knowledge." This is furnished your committee by the American Society for the Control of Cancer, and may be had, with a projector, on request. Your committee can also furnish a film strip "Cancer, Its Life History," which is excellent for colleges and premedical groups. There are also film strips on "Cancer of the Breast" and "Cancer of the Uterus" for medical groups, which may be had upon request. Your committee urges that each socie-

ty have at least one paper a year on some phase of cancer.

The State Department of Health has consented to see to the publication of articles on cancer prevention in the various newspapers and to broadcast similar talks over the radio. This is greatly appreciated by the committee and this opportunity is taken to thank them. These are to be released in a short time.

The newspaper releases and the radio programs have been furnished by the American Society for the Control of Cancer. This committee is deeply indebted to this organization for its help in this work. They have willingly and gladly furnished us with material for carrying on our work. Their Southern Representative, Dr. J. W. Cox, has been an ever helpful support in this work. We take this opportunity to thank him and the organization he represents.

In closing this report, your committee again urges each County Medical Society to appoint a local committee on cancer prevention, and urge those committees to avail themselves of the opportunities open to them.

### *Prevention of Blindness and Deafness*

Lucien Brown, Chairman

It is singular that when the term "crippled child" is used, one invariably thinks of feet, legs or spines; perhaps, because such afflictions are identifiable at a glance. Still more grievous afflictions, not being patent, may escape notice completely. The deaf child may comfort himself, as do his fellows, and hence not awaken compassion; indeed, the number of the deaf, in popular thought, is very greatly underestimated. It is clear why there is an apathy on the part of our fellow-citizens toward this type of sufferer. Still more is the blind child, immured at home or confined to his premises, removed from public notice and the commiseration that his state might arouse. Then the child with defective vision or impaired hearing is genuinely crippled, more tragically so than his fellow with a lame leg or foot, albeit that the latter is more glaringly afflicted.

Agencies to remedy deformed or diseased or otherwise defective limbs have been multiplied as may be seen when one reflects on the duplication of the efforts of the Shrine, Federation of Women's Clubs, the American Legion, and Rotary. But for the blind and crippled child, found as he is in predominantly poor families, remedial treatment is in infrequent cases, spasmodic, or the result of the sympathy of some individual who is, in a money sense, unable to provide effectual treatment.

Except for isolated acts of charity, virtually the only hope for the blind and deaf children of the poor is to be admitted into the State institution for these cases at Talladega. Probably only a minor part of the children are matriculated in the foregoing school who should be there. As matters stand, there is no competent examination provided to determine whether a child is of sufficiently defective hearing or vision to justify his attendance or whether he sees or hears too well to be pent up with more unfortunate youth. Each student inmate

costs the State three hundred dollars yearly, a sum wasted in the event a student is mistakenly kept in the school. With the act amended as proposed by a bill, now under consideration by some of the legislators, the net gain in students to the school would be considerable. In the present posture of affairs, students are sent to Talladega more or less haphazardly, many are necessarily overlooked, to spend their lives in dependence and in darkness.

It would be most desirable to have a bill providing for a sight-saving class at Talladega in which border-line students, who see too well for a touch system, but not well enough for the usual sight methods, might be trained. Special teachers and books of very coarse type are provided. Columbia University in New York trains teachers for this special work on scholarships supplied by the National Society for the Prevention of Blindness.

In our more populous centers, e. g., Birmingham, Montgomery and Mobile, sight-saving classes should be conducted.

The problem is soluble; real achievement can be had if the legislature will enact the bill mentioned above; particularly if with authority for the maintenance of sight-saving classes in addition. Except that the State come to the rescue of the blind and deaf children of Alabama, rich and poor, no committee can do more than yearn and exhort. The crucial need is for funds. It seems grotesque that huge funds should be poured out for projects affecting normal persons and benefiting them, while pitiable children bereft of their most important senses sit mutely in their corners with roaming eyes that cannot see and with dull ears turned in vain. It is a challenge to humanity. It is a call for charity. It is a chance to construct useful lives; to create self-supporting workers; to train persons into normal channels of thought. The program sketched in the foregoing lines and incorporated into the bill mentioned will lift from parasitism into productive forces thousands of Alabamians born to better things; to sight, to hope, to normal minds and lives—to happiness.

We fervently hope that the doctors of this Association will communicate with their County Superintendents of Education and with their legislators in support of the measures proposed. The need of these crippled children is sorrowful and it appeals in poignant terms to the mind and heart of every fellow human.

The present Act relating to the admission of children into the Alabama Institute for Deaf and Blind at Talladega, Alabama, enjoins on any parent or guardian having charge of a child falling within the provisions of the Act, the responsibility of effecting the matriculation of this child into the aforesaid institution. Failure on the part of the parent or guardian to enroll such a child is punishable as if the child were a hearing or seeing child according to Article Sixteen, Section 305, of the School Code of Alabama, adopted August 27, 1927. The children comprised within the terms of the Act are those "between the ages of seven and sixteen years who are so handicapped by deafness, blindness, or inability to speak as to be unable to make satisfactory progress in the public schools of the community."

Under certain circumstances certain children are sensibly exempted from the operations of the Act. It was enacted, furthermore, that it should be the duty of the County Superintendent of Education in each county of Alabama, to provide the Attendance Officer and the Superintendent of the Alabama Institute for Deaf and Blind a list of the deaf and blind of his county.

There has been proposed for presentation to the legislature of Alabama now in session a bill "to more effectively provide for the examination, enrollment and attendance at the Alabama Institute for the Deaf and Blind of all children in Alabama" within the prescriptive ages and to provide for the financing of examinations by specialists of the aforementioned children before admission and for specialist's care afterwards.

It is proposed to require each County Superintendent of Education before August 1, each year, to supply the Attendance Officer and the County Health Officer with a list of those children envisioned by the Act. On an appointed day and at a specified place, the County Health Officer, or if in a county having no health officer, any respectable physician selected by the County Superintendent of Education, is to make mental and physical examinations of the children to whom the Act pertains. If the County Health Officer deems a child to be in need of further examination to determine the exact degree of deafness and blindness, he is empowered to refer said child to an ophthalmologist or otolaryngologist to be selected from a list recommended by the State Board of Censors of The Medical Association of the State of Alabama.

Suitable and necessary surgical treatment at the hands of specialists for pupils after enrollment is to be provided for.

Monies to implement the Act are to be derived from State and federal funds to the crippled children's service of the State Department of Education. Some alterations in the case of details have been suggested. And, thus, would The Medical Association of the State of Alabama lead into light children chained to their pasts in the gloom of their prison cells.

As provided by the Constitution, each of the foregoing reports was referred to the Board of Censors; as was also the following resolution by Dr. John A. Martin:

### *Miscellaneous Business*

#### Resolution By Dr. John A. Martin

Whereas, Licensed physicians residing in this State have been made proffers by representatives of a certain advertising optical concern for the purpose of procuring their professional services in order that certain legal requirements might be met and the status of licensed physicians thus capitalized upon; and,

Whereas, The practices of such concerns are a species of quackery and fraud, tending to deceive and to prey upon the credulous and ignorant of our population, and, consequently a menace to the public health; and,



Whereas, Advertising to the public, either directly or indirectly, has always been frowned upon by the medical profession and viewed as unethical; therefore be it,

*Resolved*, By The Medical Association of the State of Alabama, that it condemns such practices as are now being engaged in by this or any other advertising concern, optical or otherwise, seeking to deceive or to defraud the public; and be it,

*Resolved*, That it is the sense of this Association that any member of The Medical Association of the State of Alabama, who, in any way, either directly or indirectly, associates himself with or lends his name to an advertising concern of this or like nature, be viewed in the light of having committed an unethical and unprofessional practice, requiring disciplinary action on the part of his county medical society; and be it,

*Resolved*, That copies of this resolution be sent by the Secretary of the Association to all constituent county medical societies, and that the Association's action and the Board's comments thereon be included with the resolutions.

There being no further business, the Association was declared at recess until 2:00 P. M.

Afternoon Session, Tuesday, April 21

2:00 O'clock

Dr. Edward W. Peterson, New York City, presented a paper on "Appendicitis in Infancy and the Younger Group of Children," which was discussed by Drs. A. A. Walker, D. F. Talley and Marion Davidson of Birmingham.

Dr. Fred W. Rankin, Lexington, Ky., followed with "Modern Management of Organic Lesions of the Colon and Rectum," discussed by Dr. Lloyd Noland, Fairfield.

Dr. Edgar Burns, New Orleans, read a paper entitled "Surgery of the Prostate." It was discussed by Drs. J. U. Reaves, Mobile; Walter Scott and Courtney Shropshire, Birmingham; Brannon Hubbard and S. D. Suggs, Montgomery.

*Miscellaneous Business*

On motion of Dr. P. V. Speir, Greenville, telegram was sent Dr. George Blue, Jefferson Hospital, Philadelphia, wishing for him a speedy recovery from his illness.

Courtesies of the floor were extended fraternal delegates, Drs. Rufus Thames and J. S. Turberville, representing the Florida Medical Association; W. H. Clark and J. T. McCall, the Medical Association of Georgia; John T. Sanders, the Louisiana State Medical Society; and Dr. Frank Samuels, Reno, Nevada.

The Association adjourned until 7:30 P. M.

Evening Session, Tuesday, April 21

7:30 O'clock

Dr. Carl Henry Davis, Clinical Professor of Obstetrics and Gynecology, Marquette University School of Medicine, Milwaukee, Wisconsin, gave a motion picture demonstration of (a) normal labor and (b) delivery by forceps.

Dr. Willis C. Campbell, Professor of Orthopedic Surgery, University of Tennessee College of Medicine, Memphis, read a paper on "Physiologic Principles Applied to the Treatment of Fractures," which was discussed by Drs. Marcus Skinner, Selma; and W. C. Hannon, Mobile.

Whereupon the Association adjourned until 9:00 A. M. of the second day.

Second Day, Wednesday, April 22

9:00 O'clock

Dr. Andrew B. Rivers, Assistant Professor of Medicine, University of Minnesota Graduate School of Medicine, Rochester, presented a paper on the "Etiology, Pathology and Treatment of Peptic Ulcer." It was discussed by Dr. Clarence Weil, Montgomery.

Dr. Walter E. Dandy, Adjunct Professor of Neurosurgery, Johns Hopkins University School of Medicine, Baltimore, dealt with "The Diagnosis and Treatment of Brain Tumors," which was discussed by Drs. Chalmers H. Moore, Birmingham, and Harvey Searcy, Tuscaloosa.

The Jerome Cochran Lecture was delivered by Dr. W. D. Partlow, Tuscaloosa, his subject being "A Debt the World Owes Medical Science."

Dr. John H. Musser, Professor of Medicine, Tulane University School of Medicine, New Orleans, presented a paper entitled "Abdominal Pain Due to Extra-Abdominal Conditions." His contribution was discussed by Drs. Fred Wilkerson, Montgomery, and Carl Grote, Huntsville.

*Miscellaneous Business.*

Vacancies in the College of Counsellors were announced by the Secretary; and Counsellors and Delegates from the districts concerned were directed to meet at 7:30 P. M., in the ballroom of the Jeffer-

son Davis Hotel for the purpose of making nominations to fill the vacancies.

The Association took cognizance of a gorgeous basket of flowers contributed by the Rosemont Gardens and instructed the Secretary to express its thanks for the courtesy.

Greetings were received from the Medical Association of Georgia; and from the Alabama Pharmaceutical Association.

Resolution by Dr. M. M. Duncan of Huntsville was read to the Association by the Secretary, whereupon the President referred it to the Board of Censors.

A recess was declared until 2:00 P. M.

#### Afternoon Session, Wednesday, April 22

Dr. Edward C. Ellett, Memphis, read a paper on "Ocular Tuberculosis." It was discussed by Drs. S. Kirkpatrick, Selma, and J. D. Perdue, Mobile.

Dr. William D. Haggard, Professor of Clinical Surgery, Vanderbilt University School of Medicine, Nashville, after paying tribute to General William Crawford Gorgas, whose bust, a contribution to Alabama by its State Medical Association, occupied a place of prominence near the President's table, delivered an address on "Recent De-

velopments in the Study and Surgery of Goitre." His contribution was discussed by Drs. S. L. Ledbetter, Jr., Birmingham, and M. S. Davie, Dothan.

Dr. Francis E. Lejeune, Professor of Oto-Laryngology, Tulane University School of Medicine, New Orleans, gave a motion picture demonstration of "The Human Larynx."

The Association adjourned at 5:00 P. M., for a barbecue at the home of Dr. and Mrs. R. S. Hill; and to reassemble at 8:15 P. M.

#### Evening Session, Wednesday, April 22

##### PUBLIC MEETING

Dr. Thos. Parran, Jr., Surgeon General, United States Public Health Service, addressed the assembly on "The Next Achievement in Public Health."

The subject of the address delivered by Dr. W. W. Bauer, Director, Bureau of Health and Public Instruction, American Medical Association, Chicago, was "Popular Beliefs That Are Not So."

The evening was closed with a reception and dance at the Montgomery Country Club.

(To be Concluded)

## DEPARTMENT OF PUBLIC HEALTH

### BUREAU OF LABORATORIES

James G. McAlpine, Ph. D., Director

#### PROPER TOXICOLOGICAL SPECIMENS\*

In cases where death is suspected from poison, the specimens to be taken for laboratory examination should always include the stomach, part of the intestines in separate glass containers, the liver, spleen, kidneys and urine, a portion of the blood, and any other material that the examining physician believes may be of value in determining the cause of death. Other samples may be obtained at the discretion of the physician from the brain, lungs, heart, muscle, bone or hair. These specimens should be taken before embalming.

The stomach and its contents are by no means sufficient material from which to

determine whether or not poison is contained in the body. The poison may be completely absorbed into the body or it may have been injected. In certain cases it is necessary to find poison in the internal organs to show that death was caused from poisoning.

In cases of suspected drowning, the blood should be taken from the left and right ventricles of the heart, placed in separate glass containers, labelled properly, and delivered promptly to the laboratory.

Where poison is suspected and death has not occurred, specimens of the urine, fecal matter, and vomited matter, or the first stomach washings, should be taken for examination.

All specimens to be submitted to the laboratory should be placed in separate clean glass containers with glass tops, sealed, properly labelled, and packed in ice. No

\*Prepared by Mr. H. W. Nixon, State Toxicologist, Auburn.



preservatives should be added unless it is definitely known what poison is contained in the specimen and that the preservative will not interfere with the detection of that poison.

There are many cases on record where human subjects have been known to die of poison yet no traces of the poison could be found in the body. Some poisons undergo chemical changes and lose their identity in the living body, others are destroyed by putrefaction. Volatile poisons may be eliminated completely. Embalming fluids interfere with tests for certain poisons or by chemical action change the form of the poison so that it cannot be detected. Autopsies should be held promptly after death and laboratory examinations should be started at the earliest time possible.

A complete postmortem examination should always be made to determine whether or not the subject died of natural causes and to locate lesions that result from certain poisons. Information from this examination with a clinical history is invaluable to the chemist who is to make an analysis of the vital organs. If the body has been embalmed, a sample of the fluid should be sent along with the other specimens.

Inasmuch as specimens of medicolegal nature are being frequently transmitted by ordinary mail, the necessity of registration is again reiterated. Samples for chemical analyses should be mailed, *registered*, to the State Toxicologist at Auburn, Alabama. Those for bacteriologic examination should be addressed to the Director of Laboratories, State Department of Health, Montgomery, Alabama, and *registered*.

## BUREAU OF PREVENTABLE DISEASES

D. G. Gill, M. D., Director

### THE AGE AT WHICH DIPHTHERIA IMMUNIZATION SHOULD BE GIVEN

There has been some disagreement among medical authorities as to the proper age at which diphtheria toxoid should be administered. In the "Queries and Minor Notes" section of the J. A. M. A. for May 16th, 1936, the editor states in reply to a question on this subject:

"Most infants at birth are not susceptible to diphtheria. This is because of antitoxin present

in the blood received from the mother. As the end of the first year of life is approached this antitoxin, for the most part, has been eliminated.

It is believed that there is greater antigenic response when little or no immunity exists than when partial immunity is present. For this reason it seems best not to administer toxoid before the twelfth month of life.

Diphtheria is infrequent under 1 year of age. From 1 to 2 years it is not rare. Therefore, it would seem better to immunize at 1 year than to wait until later unless one can have absolute assurance that the child will not be exposed to diphtheria in the meantime."

The writer begs to differ from this view because an analysis of the cases and deaths from diphtheria in Alabama shows that the disease is by no means infrequent under one year of age and that there are more deaths under two years of age than in all the ages over four. The following table shows the number of cases and deaths from diphtheria in Alabama for the six-year period, 1930-1935. As will be noted, the case fatality rate is highest in the youngest group.

|        | Under 1 | 1   | 2    | 3    | 4    | 5+   | Total |
|--------|---------|-----|------|------|------|------|-------|
| Deaths | 103     | 199 | 195  | 177  | 123  | 254  | 1051  |
| Cases  | 397     | 806 | 1073 | 1152 | 1107 | 5340 | 9873  |

The antigenic response to toxoid is quite rapid, but there is a certain time interval between its administration and the development of immunity so if one year of age is recommended as the most suitable time for immunization it means an average of fifteen months or more before the child is inoculated and develops his protection.

In communities where diphtheria is a rarity it may be safe to wait until a child is a year or more of age before administering toxoid, but in Alabama it would seem wise to offer this protection at six or nine months of age.

### IMPORTANT MAXIMS WORTH FOLLOWING IN THE TREATMENT OF PRENATAL CASES OF SYPHILIS

1. If possible always arrange schedule to finish up with an arsenical by the time of delivery.
2. Treatment *should* be continued to term.
3. Treatment *should* be continued after delivery until infection is arrested.
4. Begin treatment if possible before the fifth month. This gives a mother a much better chance of bearing living non-syphilitic children.

5. If treatment is begun after the fifth month, when there is not sufficient time before delivery to give the minimum of treatment, 10 neoarsphenamine followed by 10 bismuth, give both concomitantly or at least both in the same week. Even a small amount of drugs offers a better chance to have a living non-syphilitic child than none at all. If only one drug can be given give *neoarsphenamine*.
6. Treatment should be given throughout each pregnancy regardless of the stage of the disease or the amount of previous treatment. Latent syphilis in the female may demonstrate itself only in the birth of a syphilitic child.
7. In early syphilis the child should not be put to the breast unless the mother continues treatment.
8. If only one drug can be tolerated give neoarsphenamine without bismuth.
9. Cardiovascular syphilis, severe liver damage, marked involvement of any vital organ or the pre-eclamptic stage may make it preferable to take chances for the child, giving bismuth only or no treatment at all.

---

## BUREAU OF HYGIENE AND NURSING

B. F. Austin, M. D., Director

### PEDIATRICS AND CHILD HEALTH

The services of Dr. Joseph J. Repa, a pediatrician, have been added to the staff of the State Department of Health with funds allocated to Alabama by the Children's Bureau and derived through the provisions of the Social Security Act. Dr. Repa has been assigned to the Division of Child Hygiene of the Bureau of Hygiene and Nursing with headquarters in Montgomery.

The activities of Dr. Repa will be exerted primarily and principally with the medical profession of the State. He will extend counsel to the personnel of the State and County Health Departments, particularly in their programs in the interest of infant and child health. He will prepare newspaper articles, radio talks, lectures and demonstrations dealing with infant and child hygiene. This educational material will be supplied to the health officers to be

used for promoting the interest of the laity in matters pertaining to the health of children.

The duties of Dr. Repa with the medical profession will be to arouse further interest in child health and to bring to them the newer practices and procedures in the field of pediatrics. He will meet with the County Medical Societies to read papers, make lectures and give demonstrations concerning the diseases of infancy and childhood. Wherever clinical material is available and patients are brought by physicians to the meetings of the County Medical Societies Dr. Repa will hold clinics in the interest of those in attendance. For these clinics the physicians are urged to bring those cases that will be of universal interest and the discussion of which will be of practical benefit to the members who are present. For example, there will be no practical suggestions that can be made with regard to some rare, hopelessly incurable condition and therefore no merit in bringing such case before the society. Under no circumstance does Dr. Repa anticipate conducting a diagnostic or treatment clinic to which the public will be invited to bring children.

We foresee possibilities for the accomplishment of excellent benefits in the betterment of the health of Alabama's children through the program of activities outlined for the pediatrician. To attain the greatest results, however, will require the active and whole-hearted cooperation of all health workers and the medical profession of the State.

The services of Dr. Repa are available to all County Medical Societies and if there are those who desire a visit from him they should write to the Bureau of Hygiene and Nursing of the State Health Department for an engagement.

---

## BUREAU OF SANITATION

G. H. Hazlehurst, Director

### AEDES EGYPTI

*Aedes aegypti* is a mosquito found in Alabama which has peculiar significance for the State. It is small, has a dark body and wings, bites in the daytime, as well as at night, from dark corners and pockets, and usually attacks the ankles. It has a peculiar darting cross motion of attack. Its legs are



silver banded. It will be recognized by many by the name of stegomyia, and by some as *Aedes argentus*, in recognition of its silver markings. It must have assumed some importance long ago as it is said the Egyptian writings contained the first known description, from which its latest name was taken, *Aedes egypti*.

That this mosquito, living in the houses with us, and breeding on the premises in artificial containers, is a pest, goes without saying. This is reason enough to most of us who suffer its poisonous bites for its continued suppression, and it is possibly the most potent public reason for interest.

Its interest to the medical profession is far greater however as it is the vector of dengue fever and yellow fever.

The safety of this country depends upon early recognition of these diseases at the port of entry and the rapid warning of the health authorities, for under normal conditions the vector is with us constantly in the breeding season. Transmission is most rapid in the case of dengue and only slightly less in the case of yellow fever.

Unfortunately after bred out under natural conditions the life of the adult may be several weeks. Artificially it may run into months. The significance of this is that from the time of beginning a campaign of reduction to the time when reduction can be accomplished is not short enough to prevent transmission by the adults previously bred out, should the carrier be present in the community. Unfortunately control work cannot for various reasons be begun in all communities immediately on receipt of the warning, and even if begun would not be fully effective as trained workers are required.

In 1934 such a warning of dengue came through the Surgeon General of the U. S. P. H. S. The port of entry was Miami. Facilities for rapid mobilization were at hand through the A. R. A. On the basis of 150 towns, effective operation did not result for several weeks. The disease gained entrance, flared up in two towns and persisted as a minor epidemic in one.

As a practice mobilization much was learned. Some time can be saved in the future, though equal facilities may not be available and the time saved in one way could conceivably be lost in another.

One lesson learned was that major permanent breeding areas existed in most towns, and that for full protection physical conditions should be maintained by the towns at all times—not only as a preparation for emergency but as a remedy to the pest problem always with us. Junk yards were the one major, permanent, annual breeding area, difficult to control after attempting. A remedy, practical in most towns, is to require the storage of junk, especially discarded automobile parts, under a dry shed. This removes the water in this junk essential for *Aedes egypti* production. There are other forms of permanent construction which can be used. Elevated gutters have in many places given way to shed roofs and ground gutters. Through the adoption and enforcement of municipal ordinances much can be done for the mosquito pest problem and at the same time preparation is made for emergency.

## CURRENT STATISTICS

### \*PREVALENCE OF COMMUNICABLE DISEASES IN ALABAMA

1936

|                             | April | May  | Estimated<br>Expectancy<br>May |
|-----------------------------|-------|------|--------------------------------|
| Typhoid .....               | 5     | 12   | 27                             |
| Typhus .....                | 8     | 15   | 6                              |
| Malaria .....               | 131   | 322  | 198                            |
| Smallpox .....              | 1     | 1    | 25                             |
| Measles .....               | 133   | 74   | 500                            |
| Scarlet fever .....         | 25    | 20   | 30                             |
| Whooping cough .....        | 62    | 106  | 162                            |
| Diphtheria .....            | 51    | 50   | 30                             |
| Influenza .....             | 4017  | 450  | 154                            |
| Mumps .....                 | 563   | 332  | 102                            |
| Poliomyelitis .....         | 1     | 0    | 2                              |
| Encephalitis .....          | 0     | 1    | 3                              |
| Chickenpox .....            | 69    | 193  | 148                            |
| Tetanus .....               | 5     | 7    | 2                              |
| Tuberculosis .....          | 235   | 359  | 315                            |
| Pellagra .....              | 26    | 61   | 102                            |
| Meningitis .....            | 18    | 9    | 4                              |
| Pneumonia .....             | 744   | 459  | 242                            |
| Syphilis .....              | 877   | 1041 | 172                            |
| Chancroid .....             | 15    | 21   | 8                              |
| Gonorrhea .....             | 291   | 339  | 177                            |
| Ophthalmia neonatorum ..... | 1     | 4    | 2                              |
| Trachoma .....              | 0     | 0    | 0                              |
| Tularemia .....             | 2     | 0    | 1                              |
| Undulant fever .....        | 2     | 7    | 3                              |
| Dengue .....                | 0     | 0    | 0                              |
| Amebic dysentery .....      | 0     | 1    | 0                              |
| Rabies—Human cases .....    | 0     | 0    | 0                              |
| Positive animal heads ..... | 90    | 86   |                                |

\*As reported by physicians and including deaths not reported as cases.

The Estimated Expectancy represents the median incidence of the past nine years. With the venereal diseases, clinic cases were not included prior to this year.

## Book Abstracts and Reviews

**Diseases of the Respiratory Tract.** Clinical Lectures of the Eighth Annual Graduate Fortnight of the New York Academy of Medicine. By 21 contributors. 418 pages with 56 illustrations. Philadelphia and London: W. B. Saunders Company, 1936. Cloth. \$5.50 net.

Once a year the New York Academy of Medicine devotes a fortnight to the study of some particular field of medicine which is considered of special practical importance. The last program of this type dealt with the subject of diseases of the respiratory tract and the papers which comprised this symposium are gathered together in this volume. These papers should serve as a means of presenting to the reader the recent advances which have taken place in the field of respiratory diseases.

Many topics are covered in this volume. They include allergy of the respiratory tract, the common cold, influenza, pneumonia, pulmonary tuberculosis, and diseases due to the various industrial dusts. The relation of disease of the accessory sinuses to pathology in the lower respiratory tract is well presented. There is a section on diseases of the larynx and trachea and the uses and limitations of bronchoscopy are described by Chevalier Jackson. The surgical treatment of tuberculosis and the surgery of non-tuberculous lesions of the lungs should prove of interest to those who are surgically inclined. Particularly scholarly are the articles on immunity to tuberculosis by Arnold Rich and on atelectasis and massive collapse by Yandel Henderson. In the presentation of all of these papers one will not find quotations from the literature but rather a practical description by some outstanding physician of the particular subject in which he is best informed. The absence of x-ray illustrations will prove a handicap to the reader, for one expects x-ray illustrations in any volume on respiratory diseases. D. S.

**Clinical Heart Disease.** By Samuel A. Levine, M. D., F. A. C. P., Assistant Professor of Medicine, Harvard Medical School; Senior Associate in Medicine, Peter Bent Brigham Hospital, Boston; Consultant Cardiologist, Newton Hospital; Physician, New England Baptist Hospital, Boston. 445 pages with 97 illustrations. Philadelphia and London: W. B. Saunders Company, 1936. Cloth. \$5.50 net.

If every physician knew everything in this book of Levine's, every patient with heart disease would get adequate treatment. If every physician had at his finger tips only the contents of the chapter on acute cardiovascular emergencies, many lives might be saved. These two statements make it obvious that the reviewer considers this volume as an outstanding contribution to the practical handling of heart disease. The book is written primarily for the doctor at the bedside, for the doctor who has to treat the attack of "acute indigestion" in the middle of the night, the "fainting spell" in the midst of his office hours. It is written for the man who must frequently work without benefit of x-ray and electrocardiogram, who must size up a situation quickly and act promptly and wisely.

Levine paints a picture of disease with its various changes from its incipency to its termination, and correlates symptomatology and physical findings with their pathological background. Each chapter is in itself a complete clinical essay dealing

with such subjects as rheumatic heart disease, syphilitic heart disease, coronary disease and angina pectoris, congenital heart disease, and subacute bacterial endocarditis. Of exceptional interest are the chapters on the treatment on the disturbances of rhythm, the treatment of congestive failure, and the acute cardiovascular emergencies. The author devotes almost a fourth of the volume to the subject of electrocardiography but rather than let the amount of space devoted to the subject convey to the reader an exaggerated idea of its importance, he has placed this chapter last. His emphasis has been entirely on the clinical side of heart disease and he has succeeded in writing what the reviewer considers to be the outstanding monograph on practical cardiology. C. K. W.

**Allergy of the Nose and Paranasal Sinuses.** A Monograph on the Subject of Allergy as Related to Otolaryngology. By French K. Hansel, M. D., M. S., Assistant Professor of Clinical Otolaryngology, Washington University School of Medicine; Fellow of the Association for the Study of Allergy, the Association of Resident and Ex-Resident Physicians of the Mayo Clinic, the American Laryngological, Rhinological and Otolological Society and the American Academy of Ophthalmology and Otolaryngology. The C. V. Mosby Company, publishers. St. Louis, Mo. 820 pages with 58 illustrations. 1936. Cloth. \$10.00.

In previous issues of the State Medical Journal the reviewer has published opinions on practically every published volume dealing with the subject of allergy. These books have been very divergent in type. Some were written primarily for the instruction of patients suffering with allergic diseases. Others dealt with such individual manifestations as asthma or migraine. Others were almost encyclopedic in that they covered large fields of science and served as source books in which one might find reference to any subject related to allergy. Finally there are the volumes which deal with a summary of current literature. Hansel's volume is a combination of the latter three types. It deals only with allergy of the nasal passages. It reviews in a scholarly manner the entire literature on the subject for a period of over a quarter of a century, over twenty-four hundred references being included in the volume. Because of its thoroughness it should serve as a reference volume.

There is a chapter dealing with the physiology of the nose which should prove of value to every rhinologist whether he is interested in the subject of allergy or not. The volume is in fact printed as much for the rhinologist as for the allergist. The general practitioner and the patient will find this volume too detailed to prove of value and though it may never be used as a text-book for teaching purposes, it will undoubtedly serve an important function for those doing research work or writing on the subject of allergy.

C. K. W.

NEXT MEETING

BIRMINGHAM

APRIL 20-22, 1937



# THE JOURNAL

OF

## The Medical Association of The State of Alabama

Published Under the Auspices of the Board of Censors

---

Vol. 6, No. 2

Montgomery, Alabama

August 1936

---

### ABDOMINAL PAIN DUE TO EXTRA- ABDOMINAL DISORDERS\*

By  
J. H. MUSSER, M. D.  
New Orleans

A good many years ago, when I was a medical neophyte, I had two experiences which I considered rather striking at the time and which impressed forcibly on my mind the importance of a complete survey of the patient when he presents symptoms referable to the abdomen. As a matter of fact so effectively was I affected, that I have carefully listed mentally, for many years, various disorders that may cause abdominal pain and yet be far removed from the abdomen.

The first of these two cases was that of a young girl who was brought into the University Hospital, when I was an intern, with a diagnosis of acute appendicitis. She was a private patient of the gynecologist of the hospital. The patient was examined from the diaphragm down. The abdomen was carefully palpated and because the surgeon was a gynecologist primarily a rectal examination was made. The leukocyte count was quite markedly increased. The girl was taken to the operating room immediately and an appendix removed which was just about as normal in appearance as an appendix could be. That night she developed pain in the side, had a cough with hemoptysis and the next morning had all the signs of a full-blown lobar pneumonia. The pain in the abdomen was, of course, a referred pain from the inflamed diaphragmatic pleura; the cause of this pain might

have been discovered had she been gone over by a medical man, but the first thought of the surgeon was that there was some type of abdominal condition which required operation and because the appendix is the usual cause of such pain in a young woman with fever and leukocytosis, and who did not have pelvic inflammatory disease, the appendix was incriminated and removed.

A few months after this experience, while an intern at another hospital, I was dining at a private home and just before dinner I was asked to see the colored butler who had an acute pain in his abdomen. I stretched him out on the floor, palpated the abdomen and found tenderness and rigidity, slightly below McBurney's point, definitely present in the abdominal wall. Now this butler had been with a family of people who were actively engaged in church work. He had been with them for years and he also was one of the pillars of a church of this same denomination. I immediately called up the hospital and told the chief resident that I had a case of acute appendicitis, that there was no question whatsoever about the diagnosis, and that we might as well order out the operating room staff and get ready to work on this patient. Several hours later I returned to the hospital and was greeted by the chief resident with a rather sardonic smile. I asked him how my patient got along and if the operation had been entirely successful. He said that in so far as my examination of the abdomen went he did not blame me for thinking the patient had an acute appendicitis but he also told me, and this I have never forgotten, that the examination of the patient should include also an examination of the genitalia. This negro had acute gonorrhea with an epididymo-orchitis, the pain being referred largely to the

---

\*From the Department of Medicine, Tulane University of Louisiana and the Charity Hospital of Louisiana.

\*Read before the Association in annual session, Montgomery, April 22, 1936.

abdomen. In the innocence of my youth, and knowing the antecedents of this man and the family for whom he worked, I never dreamed for one instance that such a contingency could occur. I have never forgotten this lesson in patients presented with acute or even chronic abdominal pain and I have made an examination of the pelvic organs and genitalia as part of the routine just as I have listened to the chest.

Since these experiences, I have, I am glad to say, been in a position many times where it was possible for me to prevent a needless operation. I might say also that such operations are by no means uncommon. They occur most frequently, and almost invariably the reason is that the examination of the patient is limited to the site of the pain and was not a full and complete examination of the patient as a whole.

There has been a good deal of writing on the subject that I have chosen for my thesis today. As a matter of fact, in looking up the literature on this subject I found a surprisingly large number of papers on very much the same subject that I am presenting to you today. If it is by no means a new subject that I am presenting, it is at least a lively one. Only two years ago Dr. James E. Paullin<sup>1</sup> of Atlanta had a most interesting paper in the *Southern Medical Journal*, which many of you probably have read, on the symptoms and signs referred to the abdomen as result of disorders elsewhere. I have reviewed the literature and am going to try to present to you as complete a survey as possible of the causes of abdominal pain when intra-abdominal organs are not diseased. Some of these conditions may seem rather far-fetched and some of them I have not seen in my own personal experience but nevertheless they are mentioned in articles that bear the stamp of authenticity. I shall present my subject by listing under several heads the various conditions that cause abdominal pain when the cause is more or less distantly removed from the abdomen but will first discuss briefly the why of such a phenomenon.

*Mechanism of Referred Pain:* The nerve supply of the abdominal wall may be briefly summarized as follows: the lower seven

intercostals and iliohypogastric and ilio-inguinal run to the abdominal wall; the sixth and seventh intercostals supply the skin of the upper epigastrium; the tenth in the region of the umbilicus and the last thoracic and other two nerves the region of Poupert's ligament and the pubes. The iliohypogastric supplies also the skin over the inguinal ring, and the ilio-inguinal that of the spermatic cord and scrotum.

Each of the several spinal nerves has afferent fibers to an internal organ as well as to the skin so that it is obvious why frequently a pain which arises in one place may cause pain elsewhere. Then there is a direct relationship present between the cerebrospinal or voluntary and the autonomic or involuntary nerve system that is responsible also for reflex pain. The autonomic nervous system may, as it does in the parasympathetic and sympathetic divisions, come into close contact with the cerebrospinal system at various thoracic levels of the cord, consequently impulses to and from the organs to the cerebrospinal system and from thence to the skin and muscles are capable of producing what is known as referred pain. Head has extensively studied this relationship and has formulated a law which states that "if a painful stimulus is applied to a part of low sensibility in close central connection with a part of much greater sensibility the pain produced is felt in the part of higher sensibility rather than in the part of lower sensibility to which the stimulus is actually applied." Pottenger<sup>2</sup> paraphrases Head's law by stating that visceral stimuli are transmitted centrad over neurons that belong to the deep system—neurons of the same order as those found in the deeper skeletal tissues. Incidentally, if the patient's pain threshold is below normal extremely severe pain may be produced.

The whole question of referred pain is an interesting one about which much has been written. The pain itself is by no means an unsolved problem and the causes of extra-abdominal pain are still matters of controversy.

Extra-abdominal disorders that may cause pain in the abdomen may be listed as follows:

1. Paullin, J. E.: Symptoms and Signs Referred to the Abdomen as Result of Disorders Elsewhere. *South. Med. J.*, 27: 331, 1934.

2. Pottenger, F. M.: The Clinical Aspects of Abdominal Pain. *J. A. M. A.*, 102: 341, 1934.



#### THORACIC DISEASES

1. Coronary occlusion
2. Angina pectoris
3. Subacute bacterial endocarditis
4. Right-sided heart failure
5. Aneurysm
6. Pericarditis
7. Basal pleurisy
8. Pneumonia
9. Pulmonary tuberculosis
10. Diaphragmatic hernia

The occurrence of pain in the epigastrium associated with nausea, vomiting and shock as an expression of *coronary occlusion* has been so extensively publicized in medical literature that it hardly seems necessary to dwell upon this particular expression of abdominal symptoms due to a thoracic disorder. Nevertheless in spite of all that has been said and written about the gastric expressions of coronary disease frequently the diagnosis of acute gastritis as a cause of sudden death is still being made. Patients do not die suddenly of acute gastritis nor do they die five or six hours after the occurrence of the symptoms. The abdominal symptoms of coronary occlusion might almost be said to be classic, although of course the thoracic expression of coronary occlusion is more common than is the abdominal.

It is not generally recognized that pain of *angina pectoris*, classically supposed to run down the arm, frequently goes the other way and that anginal failure may be seen in patients who have never had pain down the arm but have had it, coming on after effort, in the epigastrium.

The thoracic cavity is separated from the abdominal cavity only by a thin sheet of muscle, the diaphragm. It seems obvious that the patient who has a *pleurisy* which involves the basal portion of the pleura might readily have the pain sensation transmitted to the abdomen and, because of the segmental distribution of the pain sensation, it is quite possible that it will occur in the lower abdomen in the region of the appendix. The same thing applies to *pneumonia*. The pain, of course, in *pneumonia* is motivated by the associated *pleurisy*, consequently there is seen right-sided abdominal pain and tenderness which mimics an acute appendicitis when a patient truly has the basal pleurisy of pneumonia.

In *pulmonary tuberculosis* the pain of the associated pleurisy is not as severe as the acute fibrinous processes that occur in pneumonia, consequently it is not likely that a patient with basal tuberculosis will have the acute syndrome but on the contrary it is more frequently a cause of chronic discomfort. *Subacute bacterial endocarditis* is another factor which may provoke abdominal pain. Most frequently the pain, however, is due to the carrying of emboli into the spleen or even the intestines to set up a perisplenitis or localized peritonitis producing pain. This cannot be said to be truly a cause of pain removed from the abdomen.

*Right-sided heart failure* is another cardiac condition which is listed by practically every one who discussed abdominal pain as a cause for discomfort or even pain in the abdomen. The pain in this condition is usually rather dull and aching; the swollen liver cannot be implicated always as being a responsible factor.

An *aneurysm* may provoke abdominal pain more particularly when the aneurysm is just above the diaphragm or when it is pressing on nerve roots which supply certain abdominal segments. In *pericarditis*, just as with pleurisy, the pain may not be present and while frequently it is more or less localized, nevertheless it must not be forgotten at times the painful stimulus is transferred to the anterior abdominal wall.

In *diaphragmatic hernia* the symptoms may be referred to the thorax or they may be referred to the abdomen. According to Hedbloom<sup>3</sup> the degree of hernia ring constriction accounts for the indigestion and pain, nausea and vomiting which sometimes resemble closely the syndrome of peptic ulcer or of gallbladder disease.

#### UROGENITAL DISEASES

1. Pyelitis
2. Pyelonephritis
3. Ureteral stricture
4. Ureteral calculus
5. Renal calculus
6. Hydronephrosis
7. Renal ptosis
8. Prostatovesiculitis
9. Epididymitis
10. Urethritis

3. Hedbloom, Carl A.: Diaphragmatic Hernia. *Cyclopedia of Med.*, 4: 559, 1932.

Boland<sup>4</sup> says to Guy Hunner the profession owes a debt of gratitude because he has persevered in showing how important *ureteral stricture* is as a cause of abdominal pain. He writes that "many an appendix and many an ovary has been needlessly removed when ureteral dilatation would have effected a cure." The pain of a *ureteral calculus* and *renal stone* may give much the same type of pain as occurs in a ureteral stricture and the pain may not be referred classically, as it usually is, but may be sent around the abdominal wall producing rigidity, and hyperalgesia, suggesting some intra-abdominal disorder. I have never seen *pyelitis* or *pyelonephritis* causing abdominal pain that in any way resembled an acute abdominal condition. Nevertheless, by those men who have written on the subject, they are put down among the important types of urogenital disorders that resemble abdominal syndromes. I remember well, however, a patient who had *ptosis* of her kidney which occasioned from time to time Dietl's crisis and which several times, when this patient was observed first by physicians other than the regular attendant, was thought to be due to an acute abdominal condition. This mimicry of an acute abdominal emergency by Dietl's crisis is apparently quite common. I mentioned in the first part of my paper the causing of abdominal symptoms by diseases of the epididymis and testicle. *Prostatovesiculitis* may also produce abdominal pain and the symptoms may be delivered to the anterior abdominal wall and there thought to be due to intra-abdominal disorder.

#### ACUTE INFECTIOUS DISEASES

1. Rheumatic fever
2. Measles
3. Typhus
4. Septicemia
5. Influenza
6. Follicular tonsillitis
7. Scarlet fever
8. Undulant fever
9. Typhoid fever

It is unusual but it does happen from time to time that the onset of some of the acute exanthematous diseases such as

*measles* and *scarlet fever* the child has the outstanding symptom of abdominal pain and vomiting. Occurring before the appearance of the rash this is sometimes a disturbing factor in the mind of the clinician who sees the patient for the first time. "Intestinal flu" likewise in its onset may simulate closely an acute abdominal catastrophe. In *rheumatic fever* the abdominal pain is by no means uncommon during the course of the rheumatic upset. In *septicemia* and in subacute bacterial endocarditis the pain which occasionally occurs in the abdomen may be the result of septic emboli lodging in one or another of the smaller vessels of the splanchnic circulation.

#### TOXIC CONDITIONS

1. Uremia
2. Lead
3. Tobacco
4. Mercury
5. Emetine
6. Arsenic
7. Arachnidism
8. Food poisoning
9. Diabetic coma

The abdominal pain that occurs from time to time in *uremia* is found sometimes to be a most disturbing symptom. The patient who is in the early stages of uremia may have so-called uremic neuritis, associated with nausea, vomiting and diarrhea. These symptoms of a toxic nature may predominate to such an extent that the patient may be accused of having an intestinal disorder rather than the actual cause of the symptoms. I have seen several such cases in the hospital in which the attention of the attendant was directed entirely to the intestinal symptoms.

The intestinal pain from inorganic poisons such as *lead*, *mercury*, *arsenic* and the toxic principles in *food poisoning* is an expression of the changes that are taking place in the intestines in most instances, but the acute colic of lead poisoning, for example, is of course without any anatomic basis and depends primarily on the lead circulating in the blood stream. I do not remember having seen an abdominal condition which I believed was due to excessive use of *tobacco* but Paullin<sup>1</sup> among others lists this toxic agent producing abdominal symptoms. I may have seen it but at least

4. Boland, F. K.: Interpretation of Abdominal Pain. South. Med. J., 38: 133, 1935.



I have not recognized it at any rate. The bite of the *black widow spider* is usually on the scrotum but the chief complaint of the patient is the extremely severe abdominal pain associated with pronounced muscle rigidity and leukocytosis. It is said that many of these patients who have been so bitten have had exploratory laparotomies because the abdominal symptoms preempted the clinical picture.

#### CEREBRAL DISEASES

1. Acute epidemic encephalitis
2. Abdominal migraine
3. Epileptic equivalent
4. Hysteria
5. "Diseases of brain" (Wechsler)
6. Spasmophilia
7. "Fears, worries, conflicts, maladjustments, repressions, inhibitions, and general emotional instability" (Paullin)

Among the most remote causes for abdominal pain, that is, geographically speaking, are the disorders of the cerebrum which frequently ape abdominal syndromes. Wechsler<sup>5</sup> writes that brain diseases in some way may affect the visceral efferent pathways from the cortex through the hypothalamus to the vagus region so as at times to express itself by abdominal pain. Becoming interested in this subject in a short time he was able to collect 16 cases in which abdominal pain apparently was due entirely to cerebral disease. Among these conditions are *acute epidemic encephalitis* and the so-called *abdominal migraine*. It might be more appropriate to classify this latter condition under allergy but certainly from time to time irrespective of the etiology there occurs migranous-like attacks in which the abdominal symptoms predominate the clinical picture. As to *epileptic equivalent* or an epileptic aura the patient who is epileptic may also have abdominal symptoms which may be erroneously diagnosed as some intra-abdominal condition and even possibly operation may follow. In *spasmophilia* the spastic tendency really produces intestinal spasm and might, by the critical, be excused as a condition which would be listed among the causes outside the abdomen. Some of the

acute intestinal spasms are severe enough to be mistaken for the pain of perforated gastric ulcer or of intestinal obstruction. Fortunately these intestinal spasms occur in a patient of a peculiar psychical makeup and fortunately from them there can be derived usually a history of previous attacks. Wechsler<sup>5</sup> mentions also *hysteria* or the so-called psychogenic abdominal pain which may be sufficiently severe and so definitely localized as to simulate abdominal syndromes. It is not uncommon, he points out, to find hysterical patients who have been operated on for a non-existent gastric ulcer or gallbladder disease or what not. This author also lists diseases of the brain without specifying definitely what the diseases of the brain are. Possibly he implies encephalitis or some of the other conditions just mentioned. Lastly, according to Paullin, potent causes for pain in the abdomen are "fears, worries, conflicts, maladjustments, repressions, inhibitions and general emotional instability." Every physician is acquainted well with the abdominal wall of the neurotic with its one, two or three scars of incisions for operations that were done to relieve, quite possibly, abdominal conditions, but one which was exaggerated and accentuated out of all proportion by the sufferer.

#### DISEASES OF THE SPINE AND SPINAL CORD

1. Intercostal neuralgia
2. Cord tumor
3. Tabes dorsalis
4. Transverse myelitis
5. Osteoarthritis
6. Osteomyelitis
7. Tuberculosis of the spine
8. Scoliosis
9. Herpes zoster
10. Psoas abscess

The late Dr. John B. Carnett<sup>6</sup> was almost a fanatic on the subject of parietal pain and tenderness of the abdomen being due to *neuralgia* and independent of any intra-abdominal lesion. He contended that there was practically no such thing as chronic appendicitis and that it was a very clear-cut case of acute appendicitis that he would recognize as a cause for operation. I believe that Carnett's contention in many

5. Wechsler, I. S.: Abdominal Pain as Symptom of Disease of Brain. J. A. M. A., 105: 647, 1935.

6. Carnett, John B.: Pain and Tenderness of the Abdominal Wall. J. A. M. A., 102: 345, 1934.

respects is right. As a matter of fact, he explained or believed that many of the viscerosensory reflexes were simply examples of neuralgia even in such a condition as angina pectoris. He believed that the first lumbar nerve is the most frequent of all the spinal nerves that are likely to be involved. The first lumbar nerve supplies the small triangular segment of the lower abdominal wall and it is here that the patient has pain and discomfort which is attributed to chronic appendicitis. I believe very definitely that there would be fewer laparotomies were the special test employed more frequently according to Carnett's diagnostic technic. In his test the patient balloons out the abdominal wall by holding the breath tight and squeezing the abdominal muscles. With this defense intra-abdominal inflammatory conditions are not subject to irritation by palpation. When the abdominal wall is relaxed then tenderness is found. If tenderness is still present with the muscles held taut or if the muscles are relaxed a liberal fold of the skin and fat is pinched with considerable force and if severe pain results then it may be assumed that the patient has neuralgia. If the possibility of the pain being caused by neuralgia is borne in mind there would be less mistaken diagnoses.

*Cord tumors*, if they occur between the seventh and twelfth thoracic segments, may produce abdominal pain as result of posterior nerve roots. This involvement is well known by the neurologist and is quite frequently seen. Keifer<sup>7</sup> recounts a representative case of a girl of 21 who had recurrent attacks of pain in the right upper quadrant of the abdomen. In discussing this case Dr. Temple Fay mentioned eight instances that he had observed where abdominal operations had been fruitlessly done when spinal cord tumors were present.

Gastric and abdominal crises of *tabes dorsalis* are so well known in their mimicry of acute abdominal conditions that I will say nothing more about the condition. A *transverse myelitis*, if in the proper segmental distribution of the abdominal wall, may also cause pain there.

One of the very common causes of abdominal pain as result of spinal root irri-

tation is an *osteoarthritis*. This is among the more common of the pathologic processes of the spine that sometimes produce referred pain of so much moment that the primary cause is overlooked and attention is directed to the secondary result.

*Osteomyelitis, tuberculosis of the spine* and even *scoliosis* are spinal abnormalities which have been known to simulate abdominal conditions as result of nerve irritation before the true explanation was forthcoming. *Psoas abscess* may do the same thing.

*Herpes zoster*, a virus disease, is listed among the diseases of the spinal cord because it is an infection of the sensory spinal ganglia. The first symptom is pain of a root nature and root distribution, associated with skin hyperesthesia. Following this sometimes within a few hours and other times not for several days does the vesicular distribution of the skin lesion appear. If the ilio-inguinal or iliohypogastric nerves are involved a severe pain may very likely occasion a misdiagnosis before the vesicles have appeared. This has happened but it is relatively uncommon.

#### PAIN OF ABDOMINAL WALL

1. Intercostal neuralgia
2. Fibro-myositis
3. Epigastric hernia

I have listed *intercostal neuralgia* here and elsewhere because the neuralgia cannot always be said definitely to be dependent upon diseases of the cord where I have discussed it.

*Fibro-myositis* is relatively uncommon in this country though very frequently observed in the damp, cold climates of the Scandinavian countries, Holland and England. The English writers have called attention to the fact that sometimes the fibro-myositis may be limited to the rectus muscles just as it is seen most commonly in this country confined to the sterno-cleido-mastoid muscle. The pain, tenderness, stiffness of the muscle may deceive but absence of leukocytosis, usually fever and of course pulse rate make the deception one not likely to be truly a spurious delusion.

*Epigastric hernia* is said by the surgeons to occasion so much discomfort when a small section of the intestines is caught in the hernial opening that the true cause is overlooked and the patient is operated on for gastric ulcer.

7. Kiefer, E. A.: Abdominal Pain as Misleading Symptom of Spinal Cord Lesions. Am. J. Digest. Dis. & Nutrition, 2: 520, 1935.



#### ENDOCRINE DISORDERS

1. Thyroid
2. Pituitary
3. Addison's disease

Cushing, according to Wechsler,<sup>5</sup> has shown that solutions of *pituitary* when injected into the ventricles cause a gastric hypermotility, pylorospasm and reversed peristalsis. I think this effect shows clearly that there is an excellent explanation why, in rare intervals, it is true, pituitary disease may give rise to and resemble abdominal disorders.

I was very much interested in a talk that Dr. Arthur E. Hertzler gave recently to the Senior and Junior Classes at Tulane. Dr. Hertzler, like Dr. Carnett, does not believe that there is such an entity as a chronic appendicitis. He believes that there are other causes for the pain that occurs in the right lower quadrant of the abdomen which is attributed to a chronic appendicitis. His contention is that this pain which comes from time to time in the right lower quadrant of the abdomen is modified in some indirect way by the *thyroid* gland. He says that it occurs notably in unmarried women and possibly may have a sexual basis with the thyroid acting as a main stimulant to the sex hormones. He believes that in other words it is largely due to, and primarily the result of, thyroid dysfunction and that the condition may be relieved or cured by thyroid surgery. In some respects this assumption is rather difficult to accept but Dr. Hertzler has operated successfully on some patients who had normal metabolism. A partial thyroidectomy gave relief of this chronic discomfort in the lower abdomen.

In *Addison's disease* intestinal crises are probably familiar to you all. These are associated with nausea, vomiting and vasomotor shock, marked prostration and at times abdominal discomfort. The diarrhea, the vomiting and the abdominal discomfort occurring suddenly as a crisis may, at times to one unfamiliar with a patient's history or the course of his disease, suggest some acute abdominal emergency. This is, of course, a rather relatively infrequent condition as Addison's disease is uncommon and the mimicry of an abdominal syndrome is uncommon in this condition. The asthe-

nia affects the smooth muscles of the gastro-intestinal tract causing gas, distention and abdominal discomfort. In these cases some chronic surgical condition is likely to be thought to be present.

#### ALLERGIC CAUSES

1. Migraine
2. Henoch's purpura
3. Angioneurotic edema

I have mentioned *migraine* in conjunction with cerebral causes but migraine is frequently dependent upon allergy. Abdominal crises occur in patients with migraine. Blitzsten and Brams<sup>8</sup> have reported ten patients who had attacks characterized by severe epigastric pain without relief from ingestion of alkalis, associated with nausea or vomiting and muscular rigidity in the epigastrium. These attacks of pain may last for 24 to 96 hours with the headache disappearing early. Five of these patients had been operated upon under the belief that they had some acute abdominal disturbance. *Henoch's purpura*, a type of idiopathic non-thrombocytopenic purpura, sometimes called allergic purpura, is characterized by attacks of intestinal pain usually with hemorrhage from the bowel and certain skin expressions, such as purpura and urticaria. Sometimes this pain is extremely acute as was seen in a patient I observed some years ago at the Presbyterian Hospital. The patient was rushed to the hospital one night with severe abdominal pain and vomiting of blood: it was felt she had a ruptured gastric ulcer. She was sent to the operating room without consulting her previous history in which the correct diagnosis had been made, and was operated upon. It was impossible to control hemorrhage and the patient died.

*Angioneurotic edema* is a condition which may occur anywhere in the body. Cooke<sup>9</sup> says that the "abdominal type is important as most of these cases sooner or later are operated on for obstruction, appendicitis, volvulus or strangulated herniae. A careful history will usually make diagnosis possible."

8. Blitzsten, N. L. and Brams, W. A.: Migraine with Abdominal Equivalent. J. A. M. A., 86: 675, 1926.

9. Cooke, Robert A.: Internal Medicine, 2nd ed. 1934, p. 982.

## MISCELLANEOUS

1. Arteriosclerosis
2. Periarteritis nodosa
3. Syphilis
4. Cancer of retroperitoneal glands
5. Rectal neoplasm
6. Pelvic disease

Under the head of miscellaneous I have grouped a series of conditions which are distinctly varied. Spasm of arterial walls in *arteriosclerosis* may produce pain and circulatory disturbances anywhere in the body but usually it is more likely to occur in the coronaries, the cerebral vessels and the blood vessels of the extremities. However, it must not be forgotten that it may also happen in the splanchnic circulation or in the extra-abdominal blood vessels lying in close proximity to the abdominal cavity. The important thing to remember is that in an old individual with acute abdominal pain a careful history should be elicited to determine if there have been comparable episodes, occurring in the legs, for example, after walking.

*Periarteritis nodosa* is a condition which is thought to be quite uncommon but the incidence seems to be on the increase or at least the disease is more frequently recognized. Goodridge<sup>10</sup> writes that "at times the abdominal symptoms may be of such severity that they strongly suggest an acute surgical condition." Libman has talked to us most interestingly during a visit to New Orleans of the pain symptoms that occur as result of arteritis. It requires no stretching of the imagination to picture patients with the pain of the arteritis occurring in the abdomen and inasmuch as the diagnosis is made with difficulty such patients may have unnecessary and useless operations.

Syphilis is catalogued because syphilis may mimic any disease or disorder. All authors have listed it. Of course I am excluding the crises that occur in tabes which I have mentioned in diseases of the spine and spinal cord.

I have never seen *cancer of the retroperitoneal glands* or *rectal neoplasms* cause abdominal pain which was thought to be due to some intra-abdominal condition. The

very close anatomic relationship of these glands to the peritoneal cavity and the rectum to the same cavity of course must account for the production of the symptoms.

*Pelvic disease* is so closely allied to abdominal disease that errors of diagnosis do occur at frequent intervals. Many a godly woman has had the lower abdomen incision made for an appendix only to find she had pelvic inflammatory disease.

## SUMMARY

I have attempted to present to you the various causes of abdominal pain which may be erroneously considered to be due to intra-abdominal conditions whereas in reality the lesions are outside the abdomen. I want to accentuate one particular point and that is that these disturbances are not likely to be a cause of trouble to the medical man who has clinical acumen and experience and who examines the patient carefully.

## DISCUSSION

*Dr. Fred Wilkerson (Montgomery)*: Dr. Musser in his usual thorough, attractive, and convincing manner has discussed a subject of paramount importance. Many mistaken diagnoses and many unnecessary operations have resulted from our failure to consider the possible extra-abdominal cause of pains occurring in the abdomen. The nature of pain is not thoroughly understood and despite the work of Head, McKenzie, Sherrington, and others the sensory pathways have by no means all been discovered. It is difficult to understand in many instances the mechanism of "reflex" or "referred" pain and how a lesion without the abdomen may produce intense pain within the abdominal cavity. It is most important, however, to bear in mind that this occurs not infrequently, and to familiarize ourselves, in so far as we are able, with the various states in which it is likely to happen. I shall discuss only a few of the most important conditions to which Dr. Musser has referred.

It is generally known, I think, that pneumonia, pleurisy, measles, and certain other acute infections often resemble, in their onset, acute appendicitis, but it is not common knowledge that scarlet fever may do likewise. I have seen an innocent appendix removed, however, the day before the diagnosis was settled by the appearance of the rash. In most of these cases there is usually one helpful feature. Spasm of the abdominal muscles if caused by the infectious diseases relaxes with firm, steady pressure, but increases with pressure if the lesion is within the abdomen. The pain may be just as localized and just as intense, but the spasm does not persist. Of course, the diagnosis of the infectious disease becomes manifest in a day or two, but in the case of children, particularly, one should be wary.

10. Goodridge, Malcolm: Cecil Textbook on Medicine, 2nd ed. 1930, p. 1137.



One of the most important chest conditions that may confuse us is coronary thrombosis, which may resemble acute cholecystitis, perforated ulcer or acute pancreatitis. In all cases of acute upper abdominal pain it is essential that the possibility of coronary thrombosis be borne in mind. Sometimes, frequently in fact, the electrocardiogram is necessary for the correct diagnosis, although in most cases a careful history and physical examination will lead to the proper conclusion. In patients whose blood pressure has previously been known, the sudden marked drop in pressure that usually accompanies coronary occlusion is a most helpful diagnostic hint. While sudden stoppage of a coronary artery frequently simulates gallbladder disease, it must not be forgotten that the converse is true and that gallbladder disease sometimes simulates coronary thrombosis.

Acidosis, particularly diabetic, often presents a very confusing picture, for with it there may be intense abdominal pain, rigidity, leucocytosis, and fever. Only recently I saw a boy of fourteen, with acidosis and impending coma, whose appendix was spared only because he was a known diabetic, and whose symptoms disappeared as soon as his acidosis was treated. Examination of the urine before operation should be a *sine qua non*.

The gastric crises of tabes oftentimes are quite confusing, but usually Argyll-Robertson pupils and the absence of knee jerks are clues which lead to the diagnosis when properly followed up. Gumma of the spine, tuberculosis of the spine, and metastatic malignancy of the spine all may give rise to intense abdominal pain. Rarely, the initial symptoms of a malignant growth will be abdominal pain due to metastases in the vertebrae, as in a case I once saw. This man's suffering, I think, was as severe as any that I have ever witnessed. The slightest movement of any kind caused intense paroxysms of pain to dart from the lumbar region around both sides of his abdomen, and even to touch his foot slightly was agonizing. He sat in a fixed immobile position, bent over, with feet flat on the floor and cried whenever he was subjected to the slightest motion. It was genuine pain, too.

Just at present I have under observation a case of abdominal pain, rather puzzling in nature, a lady of seventy, with a stone in the right kidney, which completely fills the calyces and pelvis of the kidney, the largest renal calculus I have ever seen. She has attacks of pain in the gallbladder region, very suggestive of gallbladder colic and there are also x-ray evidences of a non-functioning gallbladder. Whether these attacks are referred pain from the kidney or whether they are actually due to the gallbladder I am not sure. They are much relieved by a series of gallbladder drainages, but in view of the possible psychic effect of this treatment, even this fact does not definitely settle the matter. She is not a good operative risk, so I think medical treatment will be justified for the present, at any rate.

Very important causes of reflex or referred abdominal pain, perhaps the most important because the least understood, are the neuroses. It is probably in the unstable neurotic group that more mistakes are made and more unnecessary operations performed than in any other group of cases. These

people comprise a very large percentage of our patients. They are unstable emotionally, many of them are maladjusted, they are subject to various fears and phobias, they are lacking in self-confidence, they become self-centered and thoroughly miserable. Very often sickness, especially pain, offers an escape from a situation that is intolerable, from the performance of an unpleasant duty, and salves the conscience for failure to do something that should have been done. In these individuals, sooner or later various symptoms arise, and quite frequently abdominal pain of one kind or another is likely to occur. Overwork, worry, long continued strain or anxiety, prolonged loss of sleep, in fact any one of a thousand things may be the causative factor in these unfortunates. The patient practically never guesses at the relationship between the strain, the overwork, the emotional upset and his pain, but supposes that he is the victim of an organic lesion and so consults the doctor. The pain is not usually of the clear-cut type seen in organic disease, but is frequently vague, indefinite, and changeable from day to day.

It is just in this group that medicine has made its greatest failures, and it is these patients that flock to the cultist. We have been too prone to regard the presence of pain as proof of organic disease and have failed to study the background, the environment, the personality of the patient. Consequently we have made diagnoses of gallbladder disease, chronic appendicitis, irritable colon, retroversion of the uterus and have operated for one or more of these diseases, without effecting a cure, when a more careful study of the whole patient would have led to entirely different advice with much better results. In all cases of abdominal pain, particularly of the chronic type, it is imperative to consider the possible part that functional nervous disturbances may play. Fortunately this has been more fully realized in recent years and now the personality of the patient is becoming of increasing importance in our clinical studies.

We are indebted to Dr. Musser for this stimulating paper. The lessons he has brought to us cannot fail to be of great benefit, not only to those of us who have had the good fortune to hear him, but to those patients who may subsequently come under our care. The internist in the future will be slower to recommend operation and the surgeon to perform it in all cases of abdominal pain, until the possible extra-abdominal causation of the pain has been thoroughly considered.

---

**Gonococcal Arthritis**—The importance of eradication of the initial lesion cannot be too strongly emphasized. The patient should be referred to a competent urologist as soon as the diagnosis is made. There should be no delay in beginning amiodoxyl because of the presence of an acute urethritis. Acute arthritis has been seen to respond readily and promptly to amiodoxyl in the presence of an acute primary focus. No evidence is available that this drug exerts any therapeutic effect on the genito-urinary tract infection.—*Hamilton, South. M. J., August 1936.*

## UNDULANT FEVER ASSOCIATED WITH ABDOMINAL PAINS\*

By  
A. TRUMPER, M. D.  
And  
JAMES G. McALPINE, Ph. D.  
Montgomery, Ala.

During the last few years undulant fever has become a more and more important disease. Because its symptoms may be manifold, it is frequently mistaken for other types of infection. Furthermore, an agglutination test will not always serve to make a correct diagnosis. Carpenter and Boak<sup>1</sup> have shown that many of the more severe cases never show an agglutination reaction over 1:10 or 1:15.

Musser<sup>2</sup> has pointed out that undulant fever may cause abdominal pain. Within the last few years it has been demonstrated that amebiasis is not confined to the tropics and it may also produce such severe pains in the abdomen that surgical intervention seems to be imperative. With undulant fever as widespread as it is, this disease should receive consideration in a differential diagnosis of a supposedly surgical abdomen.

The following case histories are presented since they indicate that undulant fever may cause pain in the abdominal area.

### REPORT OF CASES

*Case 1.* Mrs. V., age 50 years, complained of pain in the right side of the abdomen. On the second day of illness, her temperature showed an elevation of about one degree. There was apparent rigidity over the right side. The attending physician asked for a leucocyte count endeavoring to differentiate gallbladder involvement from appendicitis. The leucocyte count was 5,000; polymorphonuclear leucocytes 60 per cent. The pain continued in the same location and an idea of its severity can be gained from the fact that a special nurse was put on the case. The following morning the leucocyte count was 4,500; the polymorphonuclears as before. Pain and fever continued. A strongly positive agglutination test of *Br. abortus* was obtained. Incidentally it may be of interest to note that a year prior to her illness a son of this woman had a typical case of undu-

lant fever, agglutination titer 1:5000. The patient, after a febrile course of three to four months, made an uneventful recovery.

*Case 2.* Adult negro, from whom a history was rather difficult to obtain. The major symptom being persistent pain in the lower right quadrant, he was taken to the hospital for an appendectomy. The routine leucocyte count by an interne revealed 7,000 leucocytes; polymorphonuclears 60 per cent. The following morning it was repeated by another worker and found to be 6,000, the percentage of polymorphonuclears remaining unchanged. An ice bag was placed over the site of tenderness, but no relief was obtained. Only a fraction of a degree of elevated temperature was present. The surgeon calculated that the patient had a walled-off appendical abscess. Of course, it is well known that an abscess in this region, when completely walled off, is often indicated by a falling leucocyte count. A laparotomy revealed an innocent appendix. Slight temperature continued after operation and a strongly positive agglutination test with *Br. abortus* was obtained.

*Case 3.* Mrs. D., complained of indefinite abdominal symptoms, which were intermittent in character and at the time unaccompanied by elevated temperature. During one period the point of tenderness was localized over the gallbladder region. Routine blood count revealed no leucocytosis. X-ray of the gallbladder region was provokingly indeterminate. The symptoms referable to the abdomen occurred intermittently over several weeks. Leucocyte counts at all times were normal. X-rays of gallbladder and gastro-intestinal tract were consistently negative. Various clinics were visited and no diagnosis was offered. After a year's illness a test for undulant fever was made. An agglutination titer of 1:5000 was obtained and confirmed by two other laboratories. After another six months of similar symptoms, the patient made an uneventful recovery and the agglutinins in the blood disappeared.

### CONCLUSIONS

1. Case histories of three patients suffering from undulant fever, in which pain in the abdomen was a conspicuous symptom, are given.

2. Abdominal pain without other symptoms may, in some cases, indicate that undulant fever is present, especially when the blood count is normal or there is a leucopenia.

\*For reasons that are obvious, this paper is being published in conjunction with the foregoing one by Dr. Musser.—*Editor.*

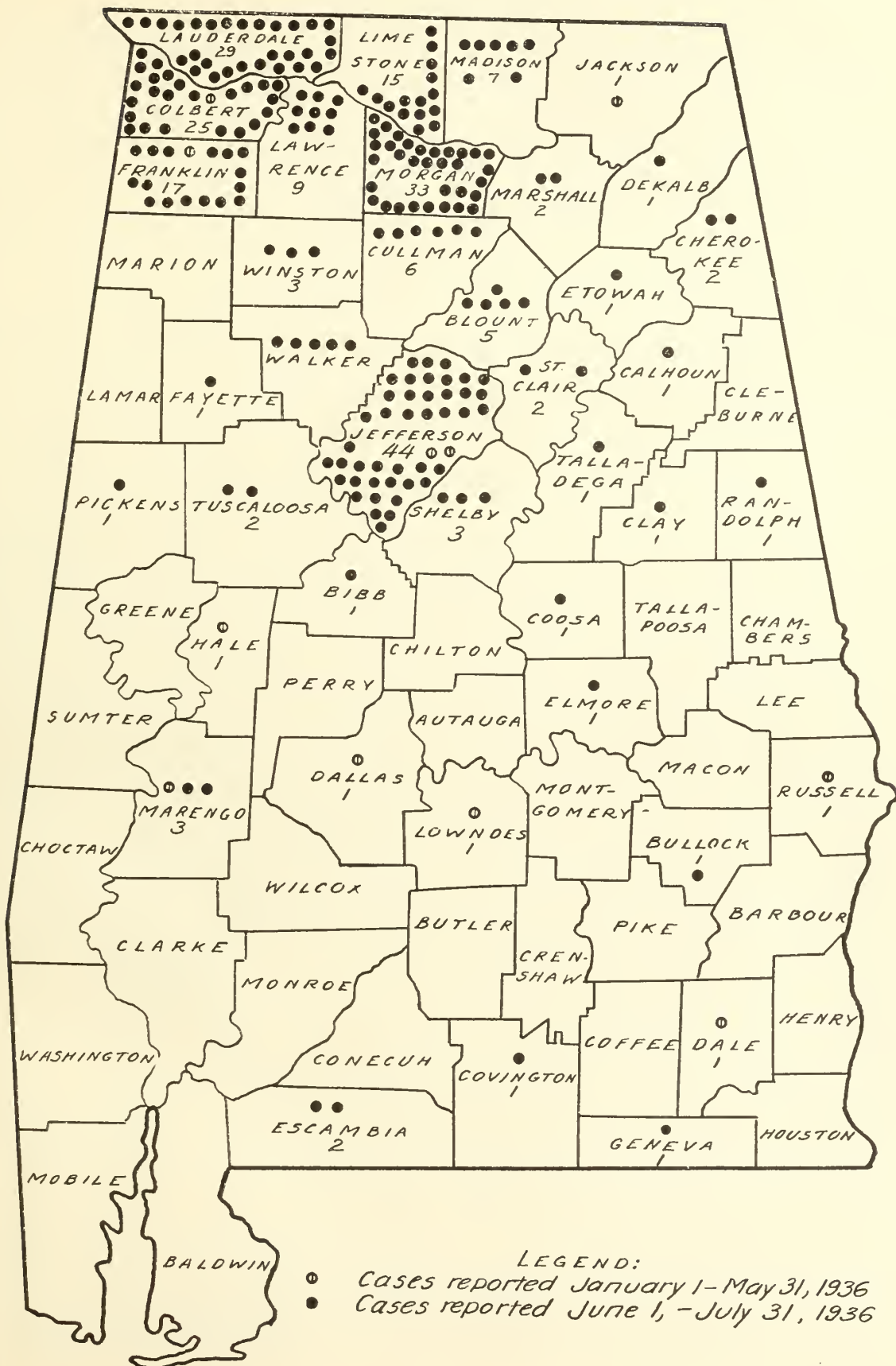
1. Carpenter and Boak: The Laboratory Diagnosis of Undulant Fever. J. Lab. and Clin. Med. 15: 437-443, 1930.

2. Musser, J. H.: Abdominal Pain Due to Extra-Abdominal Disorders. This Journal (August 1936), p. 33.

**Urinary Calculi**—The early recognition of the presence of calculi in several such cases by frequent examination of the urine for erythrocytes has resulted in subsequent treatment which has dissolved the stones. Branched calculi, entirely filling the calices and a portion of the pelvis of both kidneys, were eliminated by liberal doses of such acidifying drugs as ammonium chloride.—*Thompson, Texas State J. Med., July 1936.*



CASES OF POLIOMYELITIS REPORTED TO THE STATE DEPARTMENT OF HEALTH  
JANUARY 1-JULY 31, 1936



LEGEND:  
○ Cases reported January 1-May 31, 1936  
● Cases reported June 1, - July 31, 1936

# THE JOURNAL

## OF THE

### Medical Association of the State of Alabama

#### Editor-in-Chief

FRED W. WILKERSON.....Montgomery

#### Associate Editors

M. Y. DABNEY.....Birmingham

W. D. PARTLOW.....Tuscaloosa

J. N. BAKER.....Montgomery

DOUGLAS L. CANNON.....Montgomery

Please send in promptly notice of change of address, giving both old and new; always state whether the change is temporary or permanent.

#### Office of Publication

519 Dexter Avenue.....Montgomery, Ala.

Subscription Price.....\$3.00 Per Year

August 1936

#### POLIOMYELITIS IN ALABAMA

At page 83 of this issue of The Journal, under the Department of Public Health, will be found a brief outline by the State Health Officer of the progress and happenings of the poliomyelitis epidemic which, since early June, has been prevalent in this State. The epidemic is shown graphically also on the page immediately preceding this editorial. As this is being written, all indications point to the fact that the peak of this epidemic has been reached and that from this time on (August 1st) there should be a gradual, yet definite and steady, decline in the number of cases of this disease occurring in Alabama. No one better than the physician appreciates the uncertainties and subtleties involved in the transmission of this disease, about which much is yet to be learned. If, indeed, its march has, for the nonce, been curbed in Alabama, it may be truthfully stated that this fortunate circumstance may be largely attributed to the vigilance and alertness of the medical profession, which, in solid phalanx, has stood behind its own health department. For this splendid support, the thanks and appreciation of the State Health Officer and his entire staff are gratefully expressed.

#### SERUM THERAPY IN PNEUMONIA

Pneumonia is one of the most common causes of death in the United States and

until recently there was not much to be done about it. The average physician doing medical work will be called upon to treat from two to six patients a year with pneumonia. Of these, perhaps one-third will be benefited by serum therapy. In children the outlook is not so bright as the causative factor is usually type IV pneumococci and in these cases the serum is not very effective. Only five per cent of the patients with bronchopneumonia will be helped by the serum.<sup>1</sup>

In the past it was necessary to send the sputum to a distant laboratory to determine the type of pneumococcus causing the infection. Here further delay was experienced in inoculating mice, waiting six to eight hours for a reaction and then typing. In 1920 Neufeld reported the "quellung" (swelling of the capsule) reaction which was obtained when the pneumococci were brought in contact with homologous immune serum. This same capsular swelling was utilized by Armstrong and Logan and Small thirty years later in the typing of fresh sputum. Sabin has popularized the test in this country. He has retained the alkaline methylene blue to stain the microorganisms, substituted rabbit serum for the horse immune serum and decided that the sputum must be examined within two hours after having been coughed up. While various types of immune serum are available at the present time it is only necessary for the practitioner to use Types I and II as treatment of the other types is not very effective. The procedure is to mix a loopful of fresh sputum with the typing serum on a clean slide, place over this a cover slip and observe under the microscope.<sup>2</sup> Swelling of the capsule in positive reactions may be observed in a few minutes or may be delayed for thirty minutes. If the first examination is negative it should be repeated with a fresh specimen of sputum.

The use of the antiserum entails certain dangers to the allergic individual so that one must be cautious in its administration, especially if the patient has received horse serum within the past three months or

1. Lord, F. T. and Heffron, R.: Lobar Pneumonia and Serum Therapy, Commonwealth Fund, New York, 1936.

2. Sabin, A. B.: Immediate Pneumococcus Typing Directly from Sputum by the Neufeld Reaction. J. A. M. A. 100: 1584-1587, May 20, 1933.



gives a positive reaction to an eye or intradermal test. The earlier the serum is given in the disease the more effective is the dosage. The exact amount of the serum to be given an individual case has not been decided upon. In Great Britain the average dose in type I pneumonias was 80,000 units; somewhat more is required for type II patients, usually 100,000 units. The serum is given in divided doses and intravenously. The first 2 cc. are given very slowly to guard against reactions. After a wait of two hours the remainder of the vial is administered. The third dose is given in two hours and consists of 20 cc. of the serum. Additional doses may be given every 2 hours in the more grave infections and at least five doses are given in type II infections. If there is no response in 72 hours of treatment it should be discontinued.

Usually within eight to twenty-four hours after the first dose the patient begins to improve, the temperature may drop, cyanosis and dyspnea are relieved and the patient begins to brighten. In the cases amenable to serum therapy the disease is milder and the course is about twenty-four hours shorter. In Massachusetts, when the serum was given in the first three days of the illness, the death rate was 8.5%. In type II infections the fatality rate in the untreated was 41.0% while serum treated patients had a death rate of 27.2%.

Thus it is seen that the general practitioner has a potent weapon in pneumococcus infections of the type I and II. He can readily type his own sputum, give the serum where indicated and materially reduce the death rate, as well as contribute to the comfort of his patients.

#### MATERNAL MORTALITY

Under the Association Forum in this issue of *The Journal* appears a resume' of a study of maternal mortality in Jefferson County that merits the careful study of every physician in the State. The observations therein made of existing facts concerning maternal mortality in Jefferson County do not indicate conditions that are peculiar to that locality alone. The importance of accurate reporting of the causes of death upon death certificates is constantly emphasized by the Bureau of Vital Statistics, not only for maternal deaths but for all

causes. By a careful study of his own obstetrical practice each physician can judge the amount of responsibility he should assume in reducing the incidence of preventable maternal deaths.

Adequate prenatal care as suggested and recommended by the medical staff of the Children's Bureau of the United States Department of Labor consists in the following procedures:

"First visit to clinic or physician to be made before the 5th calendar month of gestation. A general physical examination, including heart and lungs, should be made at this time. Pelvic measurements at or before the 7th month. Urinalysis and systolic and diastolic blood pressure readings at the time of the first visit and at all subsequent visits. Visits to the clinic, or physician, monthly up to the 9th month and weekly thereafter."

Responsibility for maternal deaths is all too often due to indifference or inattention on the part of the expectant mother in making early contact with the physician, or making necessary arrangements for delivery in the home; or lack of knowledge of the seriousness of abortions or the importance of prompt attention to danger signals encountered during pregnancy.

The general public is learning that it, too, has a definite responsibility in the prevention of deaths from maternal causes. The laity should insist upon adequate prenatal and delivery service; discriminate between physicians who render such services; become community conscious toward expectant mothers; learn to appreciate the dangers and seriousness of abortions, and join in every endeavor for the promotion of safer and saner obstetrics.

While the expectant mother and general public have their responsibilities for correction in the attempt to lower the high maternal mortality rate, there is still an inescapable responsibility to be assumed by the medical profession. Until the physicians collectively and individually manifest their interest in and appreciation of adequate prenatal care, it will be difficult to obtain an improved attitude on the part of the public. Particularly is this true with regard to the prenatal medical examination and advice, seriousness of abortion, indiscriminate use of pituitrin, disregard for aseptic procedures in delivery and operative technique.

Diligent and studious consideration

should be given to every one of the seventeen observations made in the resume' of the report of the Jefferson County groups. Personal efforts as well as collective procedures should then be undertaken in an effort to lower the maternal mortality rate in Alabama. A tremendous amount of

time and effort have been expended on this study and the members of this joint committee are to be congratulated upon the thorough and courageous manner in which they have attempted to analyse and evaluate the data upon which rest their conclusions and recommendations.

## THE ASSOCIATION FORUM

*(Under this heading will appear, from time to time, as occasion may arise, contributions having a direct bearing on the general policies, functions and interests of the Association. Articles submitted should be of an impersonal nature.)*

### MATERNAL MORTALITY STUDY

Foreword: The report of a five-year study of maternal mortality has been made recently by the Jefferson County Board of Health and the Jefferson County Medical Society through a committee composed of three obstetricians and a secretary. The secretary a physician-member of the County Health Department, through personal interview with attending physicians and through access to hospital records, obtained clinical histories of all maternal deaths occurring in the five-year period 1931-1935.

The information gathered was considered confidential and the members of the committee, who evaluated the records, analyzed the data and made comments, did not know the identity of the patients, physicians and hospitals involved.

The report of the committee is too long and entails too much detail to be published in full in *The Journal*. It will be printed, however, and distributed to the medical profession in the near future. The ensuing paragraphs give a resume' of the report.—*B. F. Austin, M. D., Director, Bureau of Hygiene and Nursing, State Department of Health.*

1. This study, a joint report of the Jefferson County Medical Society and the Jefferson County Board of Health, has been undertaken with a two-fold purpose: (a) to analyze impartially the maternal death rate for Birmingham and Jefferson County and thereby attempt to establish explanation and reasons for the existing high rate, and (b) to bring to the attention of those members of the local profession who practice obstetrics the necessity of more careful work and the availability of proper means for combating the unusually high and discouraging death rate among expectant mothers.

2. All deaths have been classified "clinically" and "statistically" as maternal or non-maternal using the nomenclature of the "International List of Causes of Death." The committee has used the term "obstet-

rical mortality" as well as the all-inclusive term of "maternal mortality" in order to differentiate between deaths occurring before and after viability (28th week of pregnancy).

3. There must be more accurate reporting of the causes of death upon death certificates if mortality rates are to justly reflect local conditions. Gross inaccuracies of physicians in this regard are due largely to carelessness and failure to appreciate the value of death certificates. A disposition, on the part of a few, to palliate circumstances leading to the loss of life is an effort to cover up acts of omission or of commission.

4. Upon the physician rests the greatest burden of responsibility for reducing the incidence of preventable deaths in obstetrics, yet, a reasonable amount of responsibility looking toward the prevention of deaths from maternal causes is an inescapable and mandatory duty of the general public.

5. Many sources of information are available to the layman through which he may become familiar with the excellent and progressive objectives of the leaders in obstetrics. Fortified with this "fountain source" education, the layman should demand adequate prenatal and delivery service; he should discriminate between the physician performing obstetrics "by chance" and the one performing such duties "by science"; he should know of the provisions of hospitals for the safe conduct of deliveries; he should become community conscious toward expectant mothers and join enthusiastically and intelligently in every movement for the promotion of safer and saner obstetrics.



6. There has been noted a wide variation in what is thought to constitute adequate prenatal care. In addition, there is evidence of a widespread lack of appreciation of the value and merits of this care.

7. Because of indifference or inattention, too many labor cases do not make the necessary and essential arrangements for delivery. This is particularly true in home deliveries. Complications are permitted to exist over a varying period before medical assistance is sought by the patient and, conversely, similar untoward happenings arise because of inadequate attention by the physician.

8. Pituitrin has been found to exact its usual toll of life in the hands of the indiscriminate administrator, and in its use by the physician who depends upon this agent as a time-saving factor.

9. Abortions cast one of the greatest and most sinister shadows across the entire field of obstetrics. Unquestionably, much of the onus attached to this cause of maternal death is due to the criminal aspect; but this alone does not dismiss the subject from further consideration. Physicians and patients are responsible in performing and providing suitable care in these cases. Too often, the patients are infected or exsanguinated before summoning medical aid; while, not infrequently, the doctor is singled out for maltreatment. The public must undergo a change in regard to the seriousness of abortions, especially those of a criminal nature. It is a commentary upon the intelligence and decency of the public that so many submit to the dangers of operations at the hands of unethical physicians, of unscrupulous nurses, and others qualifying as criminal abortionists, and to their own misdirected efforts at destruction of a life *in utero*. The committee is of the opinion that all abortions should be made reportable to departments of health, as are later interruptions of pregnancy.

10. In spite of a generalized knowledge of surgical asepsis, infection was found in the study to be the major incident causing the loss of mothers. Carelessness and indifference on the part of physicians can be the only answer to this causative factor. Improper preparation of the field of operation, of the operator's hands and of instruments; frequent vaginal examinations; unsuccessful attempts at delivery and other

errors of technic subject the patient to an unwarranted risk. Further, before seeking hospitalization patients become moribund and the boon of life-saving facilities becomes impotent in the fight with the practicing obstetrical tyro.

11. Deaths from hemorrhage of every type are reflected in the survey. Failure to diagnose, too long a delay in executing proper treatment and giving prophylactic blood, glucose, or acacia transfusions, were responsible for numbers of deaths that were preventable.

12. Toxemias were third in the causation of maternal deaths. The largest percentage of these deaths was observed among patients who either did not seek proper medical supervision or, having sought this service, did not receive the proper response from the medical attendant.

13. The tendency of hospitals merely to provide a department of obstetrics, without other responsibilities pertaining thereto, is a contribution to higher maternal mortality. No thought is given to setting forth a standard for obstetrical work. Physicians not competent are permitted to conduct labor cases in an improper manner; consultations preceding major obstetrical operations are not insisted upon; internes in private hospitals devote their entire time to the medical and surgical departments; when crowded for room space, the vicious practice of putting a medical or surgical case on the obstetrical division is permitted. Little wonder, then, that under such circumstances a delivery in competent medical hands is safer at home than in the hospital. Regardless of the nature of the hospital, a trained obstetrician should head the department of obstetrics and all surgeons, general practitioners, and self-styled obstetrical specialists should adhere to the general rules of modern obstetrics as personified in the recognized specialist who should be at the head of the division.

14. Operative deliveries when judiciously determined and skillfully executed are distinct assets to mother and child. This study indicates lack of judgment and poor technic in many instances. Precipitate attempts at delivery and neglect of ominous indices for artificial delivery are the extremes that ensnare the average obstetrical attendant. Cesarean section continues to be a greatly abused procedure. For the

surgeon, unfamiliar with and deficient in the technic of obstetrical operations, it remains a bulwark of first defense. For the general practitioner, conferring with others than the well prepared obstetrician, it assumes a rank of great importance.

15. Midwife practice in Jefferson County is limited. It should, in time, be eliminated.

16. The same factors which produce a high mortality rate among white women also operate, but to a much greater extent, to produce a still higher rate among negro women.

17. The committee bespeaks for succeeding generations of expectant mothers an increased interest in their welfare, a firm resolve to improve conditions, and a purposeful ambition that will reflect credit upon the responsibilities and obligations of those engaged in obstetrics as guardians of health and life.

---

#### GROUP HOSPITALIZATION

By  
C. N. CARRAWAY, M. D.  
Birmingham, Ala.

All over the United States in the past six years non-profit corporations have been organized for the purpose of furnishing hospital service on a monthly payment plan, most of them limiting their efforts to city or metropolitan areas, but some extending their sphere of usefulness to state areas. The most notable of these institutions are in Dallas, Texas; Cleveland, Ohio; New York City; Rochester, New York; New Orleans, Louisiana; Newark, New Jersey; Washington, D. C.; Louisville, Kentucky; Memphis, Tennessee; and Jacksonville, Florida; together with many in the larger cities on the Pacific Coast. The states of North Carolina and Alabama have worked out plans applicable on a state-wide basis, the headquarters of the Alabama organization being in Birmingham.

In the city of New York two Foundations donated \$30,000.00 to a non-profit organization to set up the working arrangement, composed of a board of leading citizens, the purpose being to furnish to men, women and children the very best hospitalization at the nominal cost of 3 cents a day. In less than one year this New York City organi-

zation has enrolled nearly 100,000 subscribers to this plan, and one hundred and seventy-eight hospitals in the New York metropolitan area have contracted to furnish hospitalization to the subscribers of this plan. In North Carolina the Duke Foundation donated to a similar organization \$25,000.00 to set up a plan and that agency is now successfully operating over the state.

These organizations are not controlled by the hospitals, but enter into contract with any approved hospitals to render service to their members or subscribers. In Alabama every hospital affiliating must be approved by the Board of Censors of The Medical Association of the State of Alabama. Subscribers to the hospital service plan choose their doctors, as they have always done, and they select any hospital under contract with the plan, when hospitalization is necessary, and the hospital bill is paid in full by the service corporation. The service corporation does not take personal interest in any doctor or hospital but free choice is entirely with the subscriber. The medical men can readily see the advantages of such hospital service, in that hospital bills of their patients are paid and the patient can consequently more easily meet his obligation for the doctor's fee.

This plan is but a community service in the broadest sense of the word, and is proving to be the greatest social service ever inaugurated.

Every man, woman and child is likely, at some time, to need hospitalization; heretofore few families have budgeted their incomes to take care of this need, and when the fatal day comes they are unprepared to meet the emergency. The rich man can go to the hospital and pay for the service; the indigent poor can go to the county hospital and get good care; but the great middle class must needs stay at home and suffer because he has not the means to pay for hospitalization, and his pride forbids that he accept charity at a hospital.

It is for the great middle class that the hospital service corporations have been organized, without profit to anybody, and he can get this service by budgeting his income on 2 cents a day. It is patterned after the group life insurance plan. More than 500,000 in the United States have already availed themselves of this group plan of hospital budgeting.



This hospital saving plan, after fourteen years' operation in London, England, has over 1,500,000 subscribers.

At the last session of the Alabama Legislature a special act was passed creating the machinery for non-profit hospital service corporations. A group of patriotic citizens in this State have organized the Hospital Service Corporation of Alabama with head offices in Birmingham and the money to set up this organization has been loaned without interest. Mr. Ed. S. Moore, of Birmingham, impressed with the organization's possibilities, was conscripted to be the President of the corporation. Mr. Robt. H. Wharton was employed as Executive Director. Offices were opened in the Chamber of Commerce Building and early in June this organization began business for the furnishing of hospital service to acceptable subscribers to this plan at the rate of 2 cents a day.

The Alabama State Superintendent of Insurance has free access to the books of the Hospital Service Corporation of Alabama, and exercises close supervision over its operations. Rates charged the subscriber are subject to the approval of the Superintendent of Insurance.

All provisions of the hospital service plan of the Hospital Service Corporation of Alabama, as they now exist, were approved by The Medical Association of the State of Alabama, the American College of Surgeons, the American Hospital Association and the Alabama Hospital Association.

Twenty-five hospitals have signed contracts with the Hospital Service Corporation of Alabama to furnish hospital service to its members. In the Birmingham district the following hospitals are subscribers to furnish care: Saint Vincent's, Norwood, South Highland's Infirmary, the two Baptist Hospitals and the Bessemer General. Hospitals in sixteen other cities are also under contract to furnish the service called for in the certificates issued, as follows: Garner Hospital, Anniston; Benevolent Society Hospital, Decatur; Gibson Hospital, Enterprise; Britt Infirmary, Eu-faula; Eliza Coffee Memorial Hospital, Florence; Holy Name of Jesus Hospital, Gadsden; Forrest General Hospital, Gadsden; Walker County Hospital, Jasper; Montgomery Methodist Hospital, Montgom-

ery; East Alabama Hospital Association, Opelika; Pell City Infirmary, Pell City; The Knight Sanatorium, Roanoke; King Memorial Hospital, Selma; Selma Baptist Hospital, Selma; Vaughn Memorial Hospital Company, Selma; Colbert County Hospital, Sheffield; Sylacauga Infirmary, Sylacauga; Citizen's Hospital, Talladega; Beard Memorial Hospital, Troy; Saint Margaret's Hospital, Montgomery; Hubbard Hospital, Montgomery.

There is a great demand for this service and if it is not furnished by these non-profit organizations it will be done through some much less desirable agency.

---

---

The New American Medical Directory—The Fourteenth Edition of the American Medical Directory has been completed and copies are now available for general distribution.

The directory, with nearly twenty-five hundred pages, is a vast storehouse of information. It contains not only the most complete list available of the physicians of the United States and its dependencies and of Canada, but much additional data which hospitals, libraries and various other institutions, as well as individuals, will find useful and readily available. The directory is the only nation-wide register of physicians in which the extensive data on medical education, licensure and society affiliations have been verified.

The 1936 edition contains 183,312 names, or 4,796 more than were in the previous edition issued in 1934. The names of 13,157 physicians have been added and 7,684 names have been removed because of death. More than 70,000 changes of address have been made, in addition to thousands of changes in society affiliations, teaching positions, specialties and office hours.

In this edition, thirty-two states show an increase in the number of physicians; New York leads the list with 1,201, followed by California (369), Pennsylvania (281), New Jersey (262) and Massachusetts (249). A slight decrease in the number of physicians is shown in Missouri, Georgia, Kentucky, Tennessee, Ok'ahonia, Alabama, Indiana, South Dakota, Maine, Vermont, Mississippi and New Hampshire. When the thousands of changes of location are analyzed they seem to show a noticeable migration of physicians to the larger towns in the South Central states, a trend that was previously present also in some other sections of the country.—*J. A. M. A., July 18, 1936.*

# TRANSACTIONS OF THE ASSOCIATION

## 1936 SESSION

(Concluded)

Last Day, Thursday, April 23

THE ASSOCIATION YEAR IN RETROSPECT

The Association, sitting as the Board of Health of the State of Alabama, was called to order at 9:00 A. M. by the President, Dr. C. A. Thigpen.

The report of the Board of Censors was rendered by Dr. W. D. Partlow, acting for the Chairman, Dr. E. V. Caldwell.

### THE SIXTY-THIRD ANNUAL REPORT OF THE STATE BOARD OF CENSORS INCLUDING ITS REPORTS AS THE STATE BOARD OF MEDICAL EXAMINERS AND AS THE STATE COMMITTEE OF PUBLIC HEALTH

E. V. Caldwell, M. D., Chairman

The State Board of Censors, in conformity to constitutional mandate, has the honour to submit to this Association its Sixty-Third Annual Report. In receiving and considering this report, sight must not be lost of the threefold manner in which this Board functions; viz:

I. As a State Board of Censors for the Association;

II. As a State Board of Medical Examiners, charged with the responsibility of the direction and enforcement of the Medical Practice Act of the State; and

III. As a State Committee of Public Health.

Since the close of the last annual meeting of this Association and prior to the beginning of the present one, two regular meetings of the Board have been held in Montgomery; one on June 24, 1935 and one on November 7, 1935. At the meeting in June, in addition to the consideration of important matters logically falling under the headings I and II above, examination questions have been prepared and reviewed for those candidates seeking licensure in this State through examination. At the November meeting of the Board, matters of general concern and embraced in all of the three categories mentioned above, were given consideration; more particularly the budgets, the programs and the regulations for the conduct of the health department for the ensuing year, as submitted by the State Health Officer. In the intervals between these regular sessions, the Board members have received, considered and registered their views on certain matters submitted in writing by the Secretary and which it was felt might be satisfactorily and more expeditiously dispatched through correspondence. For example, the details of the Board's responsibility, as fixed in the 1935 Act of the Legislature creating the machinery for hospital insurance, were handled in this way.

The activities of the year just passed have been marked, to an exceptional and gratifying degree, by a spirit of harmony and consecration to the high purposes for which this Association was created. Despite the trying economic stresses to which many of our members have been subjected, and the manifold demands made upon us, resulting from the sudden and violent social dislocations taking place on all sides, the Board is happy to record that no serious breach of professional or ethical conduct arising within any of the sixty-seven county medical societies has been brought to its attention. Unquestionably there is developing a keener and deeper sense of appreciation on the part of the profession as a whole as to the role which it should play in the upbuilding and promotion of a saner and more wholesome community life. The intimate correlation and interplay in this State between the medical profession and the organized machinery for the protection of the public health present to the individual physician and to the county medical society alike rare opportunities for service and leadership. Here, too, the Board is gratified to observe that real progress is being made. Because of the enlarged plans contemplated by states in maternal and child health and in crippled children activities, to be made possible through the Social Security Act, it is felt that the time is peculiarly opportune for the profession, through wise counsel and aid, to make further and substantial contributions to community programs for human betterment. Looking to this end, the splendid work now being developed through the several standing committees of this Association, should be so perfected as to have a live, functioning unit in each county medical society. The Board, therefore, in thus directing attention to the need, on the part of the profession, for a broadening concept of a fuller participation in communal activities, desires also to urge upon these committees the need for a continuance of, and perseverance in, the labours which they have already so ably begun.

### THE PRESIDENT'S MESSAGE

(Page 1—July Journal)

The President, after first expressing appreciation for the honour bestowed in elevating him to the presidency of this Association, proceeds to discuss in a most scholarly fashion, the need for the modern physician, through continuous study and application, to keep himself fully informed on the newer advances made by his profession, if he hopes to render the type of medical service to which every conscientious physician should aspire. He directs attention, also, to the fact that the physician of to-day, by making of himself a preventer of disease as well as a healer of the sick, at once be-

LIBRARY



comes one of society's most valuable assets. While further discoursing on the great need and value to the physician for a continued acquisition of professional knowledge, he pauses to point out the opportunities afforded the membership of this Association for the full utilisation of its professional talent for the good of the people of this State. The thought is advanced that, because of our intimate and long experience in the administration of the State's health affairs, we occupy to-day a strategic position in any approach looking to the solution of the many perplexing socio-economic problems now confronting the medical profession. While he does not venture to suggest the remedy, he does express an abiding faith in the ability of this Association to cope with these problems as they may present, and the need, on our part, for the application of serious thought and study to them. At this juncture, such counsel to our profession seems most timely; and emanating from one whose long and useful life so beautifully exemplifies the wisdom of the words he utters should but lend an added impetus. Keenly appreciating some of the obstacles confronting many members in procuring the advantages of postgraduate training, he closes this portion of his message with the request that this Association give consideration to the creation of a standing Committee on Postgraduate Study.

With this suggestion the Board is in full accord; and recommends to the Association that the incoming President be authorised, in accordance with the by-laws of the Association creating standing committees, to appoint such committee to be composed of three members, whose duty it shall be to co-operate with the Board of Censors and the officers of the Association in the further promotion of a program of postgraduate study.

*The recommendation was adopted.*

#### THE GORGAS MEMORIAL BUST

The President next reminds the Association that, through personal donations of its members made several years ago, a handsome bronze bust of General Gorgas had been purchased in 1925; but, owing to the lack of an appropriate site for its placement, this bust had been reposing in a rather secluded spot in the health department building. He then follows with the happy thought that, pending such time as this Association and its Department of Health may boast a permanent home, this bust be placed in the corridors of the State Capitol where it may be viewed and enjoyed by all, and that the State Health Officer be authorised to make the necessary arrangements looking to this end.

The Board wholeheartedly concurs in these views and recommends to the Association that the State Health Officer be instructed to carry out its wishes as expressed in the President's Message.

*The Association adopted the recommendation of the Board.*

#### HIGHWAY FATALITIES

The President next discusses the increasing menace to human life, resulting from highway traffic and views with favour the aroused interest, on the public's part, now being manifested, in various ways and through various activities, in an earnest

effort to curb the mounting death rate resulting from this source. He very properly points out the need for the medical profession to manifest sufficient interest in this wide-spread movement so that the programs to be launched may be sound and the content of training to be given lay volunteers be of the right sort. Looking to this end, he suggests the creation within the Association of still another standing committee to be known as the Committee on First Aid and Fractures, whose duty it will be not only to render assistance to lay groups in this particular, but also to promote amongst physicians a more modern and improved program in the field of traumatic surgery.

The Board heartily approves these suggestions and recommends the creation of such a committee in conformity to the by-laws of this Association creating and regulating standing committees.

*The Association concurred unanimously.*

#### THE ASSOCIATION'S RESPONSIBILITY AS A STATE BOARD OF HEALTH

The next portion of the President's Message is given over to a brief recapitulation of the progress, the advancements, the set-backs and the struggles of our Department of Health over the past generation. From this survey, the President finds ample grounds for encouragement and for commendation, because of the dignified and high-toned manner in which, through the instrumentality of this Association and of this Board, the public health affairs of this State have been and are being conducted. He further expresses the hope that the members of this Association will continue their support until complete financial stabilisation of health work on a state-wide basis has been assured. With these views of the President the Board is in hearty accord as is revealed by the resolution adopted by the Board and presented to this Association for its approval.

The President closes his message with expressions of thanks to the members of the Association for the splendid co-operation accorded him during his incumbency and for the exceptional spirit of harmony and for the seriousness of purpose now prevalent throughout the organisation.

The Board feels that this entire message, pitched as it is on an high, ethical plane, brings to us many stimulating and elevating thoughts and should be carefully read by our entire membership.

*On motion, duly seconded, the report of the Board on the President's Message was adopted as a whole.*

#### APPROPRIATIONS TO THE HEALTH DEPARTMENT

Inasmuch as the people of this State, speaking through the Legislature, have seen fit to entrust to this Association the grave responsibility of shaping and directing all policies and activities pertaining to the public health, it behooves this Board and every member of this organisation to manifest sufficient concern in appropriations made to the Department of Health so as to ensure its efficient and continuing functioning. The soundness and workability of our organisation and of the machinery employed for local health service are no longer moot questions; on the contrary, they are now serving as patterns for many other states. Had this not been true, the whole struct-

ure would likely have tottered and crumbled beneath the financial stresses of recent years. Yet, and in spite of the many hardships, Alabama's Health Department is forging steadily forward as is shown by the fact that but ten of the sixty-seven counties in the State now remain unorganised. It must be borne in mind, also, that almost fifty per cent of all appropriations made to the Health Department is returned to the counties in the form of subsidies for local health work. These far-flung activities cannot be efficiently conducted, nor wholesome expansion to the unprotected areas of our State undertaken, without a reasonably adequate and stabilised appropriation for this important governmental activity.

The Health Department, in submitting to the Legislature its estimate of needs during the present quadrennium, asked for no increase of the present reduced appropriation of \$400,000, but did insist that this amount appropriated by the State was necessary for efficient functioning and contemplated expansion, regardless of what might subsequently become available through federal sources. In no sense, are funds from the latter source to be utilised in replacing or supplanting existing State appropriations, but to supplement these for purposes of strengthening and expansion of approved health activities. Feeling that, for the sound development of our present health organisation, it is most vital to at least preserve the present State appropriation, the Board has unanimously adopted the subjoined resolution and asks that you, as the legally constituted Board of Health, likewise give it your approval.

Whereas, The continuous growth and prosperity of our commonwealth in material ways is directly dependent upon the physical health and mental vigour of all of its citizens; and,

Whereas, Experience has shown that efficient health departments, both state and local, properly manned and adequately financed are important agencies not only for the control of pestilence, epidemics and the communicable diseases, but also for the development and promotion of sound programs for community betterment; and

Whereas, The Medical Association of the State of Alabama, as the duly constituted State Board of Health, has striven to develop the Health Department of this State to a maximum of efficiency and of usefulness to our people; therefore, be it

*Resolved*, That this Association go on record as imploring the Legislature, the Governor and all county governing bodies to see to it that funds sufficient for the adequate and continuing functioning of the health system of this State be made available for the proper protection of the public health.

In this connection, the Board feels that the thanks and appreciation of this Association should be extended to the Federal Congress, to the United States Public Health Service, the Children's Bureau and to Alabama's Senators and Representatives for making available to states substantial financial grants for the purpose of building up and strengthening much needed public health activities

within their own boundaries. It is pleasing to this Board to be able to record that to an appreciation of these urgent health needs by Alabama's representation in Washington, no small part of the success finally attained in procuring such financial aid has been due.

*The Association concurred in this expression of the Board.*

#### STATE SUBSIDY FOR COUNTY TUBERCULOSIS SANATORIA

The members of this Association are acutely aware of the inadequacies and short-comings of the present program of tuberculosis control for this State. Upon the urgent solicitation of the Health Department that the State participate in its program by making available a tuberculosis fund for subsidy to counties, the Legislature appropriated the sum of \$75,000 annually for the ensuing four years, to become effective when, in the opinion of the Governor, the State's revenues would permit. Such a forward-looking step on the part of the Governor, who has manifested a keen interest in this problem, and of the Legislature, is most gratifying, in that it marks a substantial beginning in the solution of one of our most difficult tasks. The Board feels that it is fitting for this Association to express appreciation to the Legislature of its recognition of the State's responsibility in this matter, as well as to urge upon the Governor the real need for making these funds available at the earliest possible time.

*The Association concurred.*

#### MEDICAL AND HEALTH LEGISLATION IN 1935

The first, or short, session of the 1935 Legislature began on January 8th and recessed February 8th to reconvene on April 30th. From this time, and with two shorter recess periods, the Legislature was in session until September 13th, after having used 49 of the 50 legislative working days allotted by the Constitution.

At the annual meeting of this Association held last year in Mobile, this Board, after carefully considering certain contemplated legislation bearing on the medical profession and the Health Department, which had been outlined in the March issue of the State Journal, recommended to this Association that it give unequivocal approval to the legislative program presented, and the Association so voted. There is given below a resume' of such legislation introduced during the sessions of the 1935 Legislature having an immediate bearing on medicine and the Health Department, together with the final fate of each.

#### LIEN BILL

Senator Rogers, of Mobile, introduced into the Senate a lien bill sponsored by the Mobile County Medical Society, for which was later substituted the so-called Kirkpatrick Bill. This bill was reported favourably out of the Judiciary Committee, but never reached the Senate floor and, consequently, never became law. It is the feeling of this Board that, in fairness and justice to the medical and nursing professions and to hospitals, the re-



lief and protection sought through legislation of this nature is much to be desired and, therefore, recommends to the members of this Association a continuance of their efforts until the end sought has been attained.

#### CHIROPODY BILL

This bill, which sought to provide a separate licensing board for the group styling themselves chiropodists, was introduced into the House by Representative Taylor, of Mobile, and referred to the Public Health Committee of that Body. After a courteous hearing before this committee it was unanimously voted to adverse the bill. Practically the same bill, with but slight alterations, was again introduced, but limiting its application to Mobile County, thus making of it a local measure. Upon being referred to the Committee on Local Legislation, it received approval and passed over to the Senate and was there referred to the Public Health Committee of that Body. Here this bill, after hearing, was adversely.

#### SALE OF BARBITURIC ACID COMPOUNDS

The need for some sort of regulatory control over the indiscriminate sale and use of the barbituric acid compounds, which frequently lead to harmful results, is one which has long been appreciated by the medical profession. After consultation with the Health Department, Representative Tolbert, of DeKalb County, introduced a bill limiting the dispensing and sale of these products to prescriptions signed by legally licensed practicing physicians. This bill passed both houses without opposition and is now law, although but meagre provision for enforcement of its provisions have been made.

#### HOSPITAL INSURANCE BILL

It will be recalled that at the last meeting of the Association, the ordinance governing contract practice was so modified as to make possible and ethical a contemplated scheme for hospital insurance. This modified ordinance stipulated that the following requirements must be incorporated into any proposed plan:

- a. Divorcement of medical services from hospital coverage.
- b. Uniformity of hospital fees throughout the State.
- c. Approval by the State Board of Censors.

The hospital insurance bill, sponsored by the State Hospital Association, introduced into the Legislature and enacted into law, embodies the principles enunciated above. Organisation along the lines provided in the bill has been steadily pushed forward by its sponsors and the Board has endeavored to promptly discharge the obligations placed upon it by law. The following hospitals, after first having met the requirements of the State Hospital Association, have been given the Board's approval:

Bessemer General Hospital, Bessemer  
Birmingham Baptist Hospitals, Birmingham  
Citizen's Hospital, Talladega  
Colbert County Hospital, Sheffield  
Drummond-Frazier Hospital, Sylacauga  
Forrest General Hospital, Gadsden

Garner Hospital, Anniston  
Gibson Hospital, Enterprise  
King Memorial Hospital, Selma  
Ladies Benevolent Society Hospital, Decatur  
Montgomery Methodist Hospital, Montgomery  
Norwood Hospital, Birmingham  
Pell City Infirmary, Pell City  
Selma Baptist Hospital, Selma  
South Highlands Infirmary, Birmingham  
St. Vincent's Hospital, Birmingham  
Sylacauga Infirmary, Sylacauga  
The Gay-Knight Sanatorium, Roanoke  
Vaughan Memorial Hospital, Selma  
Walker County Hospital, Jasper

#### RABIES BILL

The steady and alarming increase of rabies in the dog population of this State, resulting in four human deaths and the administration of some 5,500 complete human treatments, has been a source of much concern to this Board and to the Health Department. The Board desires to register its appreciation and thanks for the splendid support of the public press and of the profession given to the Health Department in its efforts to inform and to educate the public and the Legislature as to the seriousness of this controllable menace. A reasonable bill was prepared, looking to the control of this disease and introduced into the Legislature. Its first fate was to be "laughed to death" in the lower house. It was reintroduced into the Senate. When it finally emerged from its stormy passage through both houses and reached the Governor's desk for approval, it had been so amended and emasculated as to strip it of all usefulness. Despite this rather harsh and inconsiderate legislative handling of a most serious health problem, this Board feels that the full force and weight of this Association should again be thrown behind the rabies bill which is now being sponsored by the Health Department before the Legislature.

#### STERILISATION BILL

The first sterilisation bill was introduced into the Legislature by Representative Dominick, of Tuscaloosa, which, after hearings, passed both houses by substantial majorities. Upon reaching the Governor's desk, its constitutionality was questioned. The Supreme Court, in advisory opinion, pointed out that the bill, in its present form, was unconstitutional in that it failed to provide the right of appeal in every case. The Governor vetoed this bill. Its author promptly made the necessary corrections and re-introduced it. This altered bill successfully passed both houses. The Governor saw fit to again apply his veto to this bill.

#### CHANGES IN EXISTING HEALTH LAWS

For some time this Board has felt that, because of their antiquity, obsolescence and even contradictoriness, many of our existing health laws were badly in need of revision. Prior to the 1935 session of the Legislature, the Board instructed the State Health Officer to endeavour to have such revisions as were indicated prepared for the consideration of the Legislature. This was done; and the Board is happy to report that our health laws have been modernised, improved and strengthened in many ways.

## UNIFORM NARCOTIC BILL

The so-called model or uniform narcotic bill was introduced into the Legislature through the instrumentality of one of the Federal Narcotic Bureau's agents. It was discovered, upon study of this already introduced bill, that there were several objectionable features, in so far as Alabama was concerned. The State Health Officer, after conference with Admiral Richmond P. Hobson, President of the World Narcotic Defense Association, drafted amendments to Sections 15, 17 and 20 of the bill. The bill, as amended, was passed by both houses, approved by the Governor and thus became law.

(Those interested in this bill will find a discussion of these amendments in the October 1935 issue of the State Journal, pp. 161-162.)

## PEDIATRIC CLINICS

At our last meeting, and upon the Board's recommendation, this Association approved the annual expenditure of an amount not to exceed \$300 for the promotion of postgraduate courses for our rural physicians. During last summer, in co-operation with the Children's Bureau, courses in pediatrics were arranged at various points throughout the State. Those conducting these courses were:

Dr. John M. Saunders, Vanderbilt University,  
Dr. T. Coke Smith, University of Louisville,  
Dr. J. W. Bruce, University of Louisville,  
Dr. A. A. Walker, Birmingham.

Each of these pediatricians gave one or more weeks to the program. In all, eight courses were given, each consisting of daily meetings for five days. At these meetings problems in the care and treatment of infants were discussed and, in addition, the clinician was available for consultation on individual cases. These lectures were well received and well attended, with many physicians travelling considerable distances to be present. In many instances, resolutions were adopted by the county medical societies endorsing the program and urging a continuance of this work.

The Board is pleased to note that our President deems these programs of sufficient importance to urge their continuance and to suggest the creation of a standing committee within the Association for this purpose.

DENTAL CONSULTANT TO STATE COMMITTEE OF  
PUBLIC HEALTH

At the regular meeting of the State Board of Censors held last June, certain correspondence with Dr. H. Clay Hassell, then President of the Board of Dental Examiners, was presented to the Board. Through him the dental profession expressed a desire to have representation on our Board when serving as a State Committee of Public Health inasmuch as many of the problems presenting in public health were of import and vital concern to its profession. Quite a good deal of discussion ensued, after which, the opinion was expressed that because of the present law making the State Board of Censors the State Committee of Public Health and the State Board of Medical Examiners, it would not be possible to have a member of the den-

tal profession a regular member of the State Committee of Public Health. The sentiment was expressed that it should prove most helpful to the Board and to the State Health Officer to have available a consultant in dentistry, and there was appointed a committee consisting of Dr. W. D. Partlow, Chairman, Dr. E. V. Caldwell, and Dr. J. N. Baker to give this matter further consideration and to report to the Board. This committee was to meet with a like committee from the dental profession; such a committee subsequently being appointed and consisting of Dr. H. Clay Hassell, Chairman, Dr. C. F. Chandler and Dr. C. B. Bray. After the consideration of this subject by these two committees, it was agreed that an arrangement following along the lines suggested in the subjoined resolution should prove helpful and satisfactory.

Whereas, It has been recently called to the attention of the State Board of Censors that a closer affiliation of this Board with the State Dental Association could result in advancing the interests of public health as it relates to dentistry; and,

Whereas, It is the wish, hope, and desire of both medical and dental associations that a friendly co-operation continue and the usual friendly relationship of the two organizations be encouraged and fostered by mutual benefits that may thus accrue; and,

Whereas, A committee representing the State Dental Board has conferred with a like committee representing the State Board of Censors for the discussion of this problem of mutual interest to both; therefore be it

*Resolved*, That the State Board of Censors recommend to The Medical Association of the State of Alabama that the State Dental Association be invited and requested to select, in such manner as it may determine, one of its members to be designated as Dental Consultant to the State Committee of Public Health; it being the intent of this resolution that the State Committee of Public Health advise and confer with said Dental Consultant, representing the dental profession, in matters pertaining to dental health and oral hygiene as these activities may affect the health and welfare of the people of this State.

The Board recommends the endorsement of this resolution and that it be authorized by the Association to put into effect the views and sentiments expressed therein.

*The recommendation of the Board was adopted by the Association.*

COMMUNICATION FROM THE ST. LOUIS MEDICAL  
SOCIETY

Under date of March 9th, 1936, President Thigpen received a communication from the St. Louis Medical Society signed by Dr. John S. Young, Chairman, Smoke Committee of that Society, which was referred to the State Board of Censors.

In this communication the difficult and complex problems arising from smoke nuisances in many cities as well as the health hazards surrounding workers in many of the modern industries from



dusts and fumes of various sorts are discussed and advice sought as to possible ways in which the organized medical profession might aid in their solution. Dr. Young states that his committee, which, presumably represents only the St. Louis Medical Society, has made certain suggestions (not specifically mentioned in the communication) to the United States Public Health Service which have been kindly received, and he further states that the Service would like to have an expression of opinion from the entire profession of the United States.

The Board appreciates the enormity and complexity of the questions raised in this communication and is in full sympathy with the suggestion that the entire profession should lend full co-operation and support to the Federal official agency—The United States Public Health Service—charged with the responsibility of aiding the several states in their efforts to find solutions not only of health problems of this nature but also of many others having important interstate implications. There now exists in the United States Public Health Service a Division of Industrial Hygiene and Sanitation whose responsibility it is to study and aid in the control of health hazards and nuisances arising out of industry.

The Board feels that, because of the national scope and importance of this question, if already such an approach has not been made, it might be well to have this matter brought to the attention of the American Medical Association through its House of Delegates at the forthcoming meeting of that Body in Kansas City. With the thought in mind of having this Association extend full co-operation, the Board recommends that our delegates to the American Medical Association be instructed as to this Association's wishes and that they work toward the end of procuring the support of the united profession in an effort to find a satisfactory solution.

*The Association concurred in the recommendation.*

#### REPORTS OF THE VICE-PRESIDENTS

(Page 17—July Journal)

All of the Vice-Presidents from the four subdivisions of the State have submitted reports. With one exception, these reports show that district meetings have been held during the year and that most of the counties are holding regular meetings at varying intervals at which time scientific papers are presented. The Vice-President of the Southeastern Division wisely directs attention to the great need of all county medical societies holding more frequent meetings, making them, if possible, of monthly occurrence and also suggests that greater interest can usually be aroused by having a visitor appear on the program to discuss some important scientific topic, culminating the occasion with an informal social gathering afterwards. The Board is in hearty accord with this suggestion and urges county medical societies to have more frequent recourse to this practice.

The Board regrets to note that the Southwestern Division, in which are located the large and pro-

gressive societies of Mobile and Dallas, has held no district meetings the past year and expresses the hope that this may not occur again. These district meetings, if properly planned and arranged, may be made of tremendous service, affording, as they do, opportunity for pleasant social intercourse as well as for real scientific advancement.

In order that a livelier interest may be aroused and the Association's membership increased, the Vice-President of the Northeastern Division makes the suggestion that the Association give consideration to the possibility of defraying the travel expenses of the Vice-Presidents so that they may visit, at least once annually, each county medical society in his district.

At the annual meeting of the Association last year funds for travel purposes were allocated to the several standing committees to enable them to more effectively discharge their duties and responsibilities. While this action taken last year absorbed such funds as it was felt should be expended in this manner, the Board will be glad to give consideration to this suggestion. In the meanwhile the hope is expressed that the Vice-Presidents will continue to stimulate interest, to promote membership and to emulate the example set by our Vice-President of the Northeastern Division, whose report shows that he has held four most interesting and profitable meetings in his division.

*The expression of the Board was concurred in.*

#### REPORT OF THE SECRETARY

(Page 18—July Journal)

The Board finds that the books and records of the Secretary of the Association are complete, accurate and entitled to your approval.

The Board so recommends.

*The recommendation of the Board was adopted.*

#### REPORT OF THE TREASURER

(Page 19—July Journal)

The Auditing Committee from the Board, after careful examination and review of the books of the Treasurer, finds them in excellent order and entitled to your approval.

The Board so recommends.

*The report of the Treasurer was approved.*

#### COMMITTEE OF PUBLICATION

(Page 21—July Journal)

The report of the Committee of Publication indicates the keen interest manifested in The Journal by the many timely and beneficial contributions made during the past year. This Board speaks the continued interest of the membership in this official organ of the Association.

The Board recommends its adoption.

*The recommendation was adopted.*

#### REPORTS OF STANDING COMMITTEES

The Board is happy to again record the continued improvement and interest manifested by the personnel of the several standing committees of this Association. Our President has recommend-

ed and this Association has approved the creation of two additional committees to aid in the promotion and furtherance of new activities calling for the co-operation and support of the medical profession. As the complexities of modern social life multiply, more and more will problems arise requiring, for their sound solution, the guidance and counsel of physicians.

#### 1. PUBLIC RELATIONS

(Page 21—July Journal)

This report reveals a commendable activity on the part of this committee during the past year and directs attention to the great need for organized medicine to carefully watch and study the trends of modern society, so that a sane and proper leadership from within the medical profession may be given to the medical aspects of these trends. This committee further suggests that the pages of our State Journal be more freely utilised in an effort to keep the profession more fully informed in the widening field of social and medical economics.

The Board feels that these suggestions are most timely and suggests to this committee that its members prepare, from time to time, suitable, short articles bearing on these topics, for publication in The Journal.

The Board recommends the approval of this report.

*The report was approved.*

#### 2. MENTAL HYGIENE

(Page 22—July Journal)

This report reveals a commendable activity on the part of its members in an effort to stimulate interest in educational programs in mental hygiene. This report points out the crying need in Alabama for the establishment of a clinic for mental hygiene along sound and approved lines and wisely suggests that such a clinic should be staffed by personnel trained in psychiatric techniques.

The Board is fully cognizant of the needs in this field of preventive medicine and expresses the hope that the health and public welfare departments may soon be in financial condition to at least make a beginning along the lines suggested by this committee.

The Board desires to here reiterate the views voiced in the message of our President for the urgent need for the complete co-operation of the members of this Association in the formulation and promotion of mental hygiene programs.

*The expression of the Board was concurred in.*

#### 3. MATERNAL AND INFANT WELFARE

(Page 23—July Journal)

The report of the work of this committee, devoted to maternal welfare and submitted by its Chairman, Dr. A. E. Thomas, of Montgomery, is given over largely to a study and analysis of the 405 maternal deaths (provisional) recorded in Alabama during 1935. This study unerringly reveals that many, if not the majority, of these deaths fall into the preventable group of disasters which might have been obviated through adequate pre-

natal care, the employment of better surgical technique and a more studied and refined obstetrical judgment. The Board heartily endorses the plea made in this report to the practising physician to exercise all vigilance and care in an effort to bring to a minimum this needlessly high maternal death rate in Alabama.

The report on the part of the work of this committee devoted to infant welfare was presented by Dr. Hughes Kennedy, Jr., in which attention is directed to the encouraging beginning already made by the Bureau of Hygiene and Nursing of the State Health Department in expanding and developing sound programs for both maternal and child health on a state-wide basis and made possible through federal financial participation. This report stresses the need for the closest co-operation on the part of the medical profession not only in this field but also with the programs for the crippled child, the administration of which will be the responsibility of the Rehabilitation Division of the State Department of Education.

Both of these reports reveal a keen understanding and grasp of both the needs and the difficulties existing in these fields of preventive medicine and are entitled to the unanimous approval of this Association, and the Board so recommends.

*Both portions of the report were approved.*

#### 4. PREVENTION OF CANCER

(Page 25—July Journal)

This report strikes at the very heart of cancer control—education; education within the medical profession as to the latest developments in the earlier diagnosis and proper treatment of malignancy; education of the lay mind in the matter of a clear understanding of the potentialities lurking in certain lesions and conditions known as precancerous, which, if properly appreciated and handled, should lead to a substantial reduction in the cancer mortality rate. Such an educational program this committee is promoting in every county medical society in the State by furnishing not only suitable literature for public talks and newspaper articles but also by making available certain film strips for both lay and medical groups.

The Board feels that such a program is not only eminently sound but should prove so helpful to the medical profession as well as to the laity as to be quickly and eagerly adopted in every county in the State.

The Board recommends the approval of this report.

*The report was approved.*

#### 5. PREVENTION OF BLINDNESS AND DEAFNESS

(Page 25—July Journal)

This report not only portrays the sequestered and isolated life which unfortunate children afflicted with blindness and deafness are forced to lead, but it also points out that these special afflictions seem not to make the responsive appeal to the human heart one experiences in viewing the grosser physical handicaps resulting from limb and body deformity, such as the infantile paralysis and club-foot victim. This report stresses the fact that in the first group there are many who,



through the application of expert medical treatment, might have their handicaps so improved as to completely change their outlook on life as well as their usefulness to society, and urges the members of this Association to use their influence in trying to promote certain legislation now being sponsored by its committee and the State Health Department, which seeks to have the State recognize and discharge its obligations to these unfortunates, over and above what is now being done.

With the views herein expressed the Board is in hearty accord and recommends the approval of this report by the Association.

*The Association approved the report.*

#### CONSTITUTIONAL MATTERS

##### AMENDMENT TO SECTION 7, ARTICLE XII, OF THE CONSTITUTION OF THE MEDICAL ASSOCIATION OF THE STATE OF ALABAMA

This article of the Constitution deals with the duties and responsibilities of the Treasurer of the Association. Section 7 of this article sets forth specifically the manner in which the funds of the Association are to be managed and disbursed, and reads as follows:

"He shall place all funds and securities of the Association in such banks or depositories as may, from time to time, be designated by the Board of Censors, and said funds and securities shall not be disbursed or transferred, except by check or written order countersigned by the President and the Chairman of the Board of Censors."

In order to simplify the present method of disbursement and to conserve both the expense and labour features of such disbursement, the Board recommends that Section 7 of Article XII of the Constitution be changed to read as follows:

"He shall place all funds and securities of the Association in such banks or depositories as may, from time to time, be designated by the Board of Censors and said funds and securities shall not be transferred except upon the authorization of the Board. The Treasurer is authorized to pay by check current accounts of the Association when same are supported by the written approval of the Secretary of the Association."

Inasmuch as this alteration involves a change of the Constitution, and, therefore, will have to lie over for a period of one year before final action can be taken, the Board so recommends.

*The recommendation of the Board was adopted.*

##### CONSTRUCTION OF SECTION 11, ARTICLE VI, OF THE CONSTITUTION, DEALING WITH THE STATUS OF COUNSELLORS MOVING OUT OF THE CONGRESSIONAL DISTRICT FROM WHICH ELECTED

The Secretary of the Association has requested the Board to construe, for his guidance in the annual revision of the Rolls, Section 11 of Article VI of the Constitution which reads as follows:

"Any active counsellor, except one who has served the Association for ten or more consecutive years, moving out of the congressional district from which he was elected shall thereby *ipso facto* forfeit his position as a counsellor."

Section 10, of this article, immediately preceding, provides for a uniform distribution of counsellors in the several districts, based on medical membership and reads as follows:

"The nominees must be so distributed among the congressional districts of the State as to make the counsellors in the several districts bear approximately a uniform proportion to the aggregate number of members of county medical societies in the respective districts, due and proper regard being had to the qualifications for the position of a counsellor, prescribed in the preceding section."

Membership in this unique group, set up within our organisation, is rightly viewed as a coveted honour, bringing prestige to the holder as well as opportunities for larger service. The important responsibilities borne by this Association in administering the public health affairs of this State amply justify the perpetuation of the College, whose usefulness in this field marks it as a real tower of strength.

When these two sections are weighed together, and in the light of the views expressed above, their intent seems clear; namely, to preserve to the membership of the several societies in each congressional district not only an equitable representation in the College, but also to afford to each one of its members the opportunities of preferment and advancement. With the thought in mind of rewarding a rather long and continuing service, an exception is made in the case of a counsellor who has served ten or more years. In so far as membership in the College is concerned, the Board feels that the verbiage used in the Constitution "moving out of the congressional district from which he was elected" should be construed as the shifting of the base of professional activities for the purpose of earning a livelihood, regardless of legal residence for voting purposes or otherwise. The Board desires to point out that while the decision on the part of a counsellor of less than ten years standing to move to another congressional district does, seemingly, inflict a temporary hardship from the standpoint of professional prestige in the Association, it, in no sense, alters his status in so far as organized medicine is concerned, provided he promptly affiliates himself with the medical society of the county in which he has moved. Should his professional activities and labours in this medical society be such as to merit membership in the College, and if this honour should be bestowed upon him, the Constitution provides that he be given credit for the number of years previously served as a counsellor in computing his eligibility for life counsellorship in this Body. Therefore, for the purposes of clarification of these two sections of Article VI of the Constitution the Board recommends the adoption of the following ordinance:

*Be it ordained by the Medical Association of the State of Alabama, That the following verbiage used in Section 11 of Article VI, of the Constitution, and reading "moved out of the congressional district from which he was elected" be construed to mean "the shifting of the base of professional activities for the purpose of*

earning a livelihood, regardless of legal residence for voting purposes, and regardless also of the payment of dues in a county medical society not located in the district in which he is now residing."

*The ordinance was adopted by the Association.*

#### RESOLUTIONS

##### RESOLUTION BY DR. JOHN A. MARTIN

The following resolution was introduced by Dr. John A. Martin, of Montgomery:

Whereas, Licensed physicians residing in this State have been made proffers by representatives of a certain advertising optical concern for the purpose of procuring their professional services in order that certain legal requirements might be met and the status of licensed physicians thus capitalised upon; and,

"Whereas, The practices of such concerns are a species of quackery and fraud, tending to deceive and to prey upon the credulous and ignorant of our population, and, consequently a menace to the public health; and,

"Whereas, The advertising to the public, either directly or indirectly, has always been frowned upon by the medical profession and viewed as unethical; therefore be it,

"*Resolved*, By The Medical Association of the State of Alabama that it condemns such practices as are now being engaged in by this or any other advertising concern, optical or otherwise, seeking to deceive or to defraud the public; and be it,

"*Resolved*, That it is the sense of this Association that any member of The Medical Association of the State of Alabama, who, in any way, either directly or indirectly, associates himself with or lends his name to an advertising concern of this or like nature, be viewed in the light of having committed an unethical and unprofessional practice, requiring disciplinary action on the part of his county medical society; and be it,

"*Resolved*, That copies of this resolution be sent by the Secretary of the Association to all constituent county medical societies, and that the Association's action and the Board's comments thereon be included with the resolutions."

It would appear that the advertising concerns referred to in this resolution, as well as others likely to appear in the future, are attempting to capitalise upon the financial adversities suffered by many physicians as a result of the recent severe economic depression. It is certain that no other professional group had its economic security more seriously threatened; and it is certain, also, that not a few physicians were stripped even of the bare necessities of life. It can be understood that, under circumstances such as these, the lure of a competency where formerly there was no competency, creates a situation calling for a certain degree of moral courage on the part of the individual physician. Yet, it should require no extraordinary powers of discernment on the part of a reputable physician to grasp why such proffers are being made. It is not because of his superior knowledge and training in ophthalmology or even in optometry; because, in the vast majority of

cases, such physicians possess no such specialistic knowledge; it can only be for the purpose of circumventing the existing laws of this State regulating the sale of such products and from the operation of which law the licensed practitioner is now exempt, together with the prestige to be gained through the employment of a licensed physician. Consequently, in the light of our ethical code, for a member of this Association to permit his name or his services to become identified with any advertising schemes of this or like nature, can only be viewed as bringing into disrepute the profession of medicine to which he belongs and to which, so long as he remains a member thereof, he owes allegiance.

The sentiments and views expressed in this resolution are correct and sound in ethical principle and must be upheld by every county medical society. It is well that attention be directed to, and consideration be given by, our organisation to the subtle financial temptations held out as baits by scheming business enterprises whose sole purpose is the promotion of their own selfish interests. Proffers made to physicians from sources such as these, when carefully looked into, seldom carry sufficient financial rewards to justify the forfeiting of his ethical rating among his fellow practitioners.

The Board, therefore, recommends the approval of this resolution by the Association, and further urges that county medical societies and their members be continuously on their guard concerning proffers arising from such sources.

*The recommendation of the Board was unanimously concurred in by the Association.*

##### RESOLUTION OF DR. M. M. DUNCAN

The following resolution was introduced by Dr. M. M. Duncan, of Huntsville:

"1. *Be it resolved*: That the Alabama Medical Association condemns the practice of its members issuing certificates of disability to be used by citizens of this State to obtain exemption from payment of poll taxes, road taxes and privilege licenses, and goes on record as favoring the policy that all such certificates of disability should be granted only by the duly constituted health officers of the respective counties in the State.

"2. That any member of this Association, other than the duly constituted health officers of the State of Alabama, and of the respective counties in the State of Alabama, who hereafter signs any such certificate to be used for the purpose of obtaining exemptions in the State of Alabama from poll tax, road tax, or privilege license, shall be expelled from membership in this Association.

"3. That we recommend to the Legislature of Alabama the amendment of the laws so as to make such exemptions apply where the disability is not only permanent, but total, and that such exemptions are to be obtained only upon certificates of such disability issued by a duly constituted health officer of the State or counties."

The gist of this resolution is to the effect that this Association go on record as condemning the practice of any of its members issuing certificates of disability to any one for the purpose of obtain-



ing exemptions from the payment of poll taxes, road taxes and privilege licenses under pain of expulsion from this Association and that all such certificates of disability shall be issued only by duly elected county health officers.

The Board sees many objections to this resolution, a few of which are enumerated below:

(a) It has been the uniform policy of the Health Department, guided and directed by this Association, to have the medical health officer devote his full time to the preventive aspects of medicine. Any certificate of disability should be based upon a careful physical examination executed by a physician equipped to make such examinations. The county health officer, whose activities do not bring him in close contact with the clinical side of medicine, is usually not so equipped. To adopt the suggestions carried in this resolution would be in direct contravention to the established policies of this Association which seek to preserve to the active practitioner the clinical field of medicine, in so far as this may be possible, and to limit the activities of the medical health officer to the preventive field.

(b) Only 57 of the 67 counties in this State now have full-time health officers. Therefore, it is not entirely clear to the Board how the situation would be, or might be, met in the ten unorganised counties.

(c) One seeking to enjoy personal profit through the procuring of a certificate of disability based upon a medical examination should, except in the case of the totally indigent, be willing to pay a reasonable fee in order to establish his claim of physical disability. Surely no one should be better qualified to pass upon the merits of each individual case than the practitioner of clinical medicine and to him should the law and the applicant alike turn for a dependable decision of each case. To proceed otherwise, would, in the opinion of the Board, not only be an infringement upon the prerogatives of the practising physician, but would also tend to materially hamper the activities of the health officer in the field of preventive medicine.

(d) The Board feels that no reputable physician's status in organised medicine should, in any way, be jeopardised by the performance of a service which so clearly falls within his province. On the contrary, this service, except for the totally necessitous case, should not be exacted, either by the medical profession or by the courts, of the medical health officer.

For these reasons, the Board declines to give endorsement to this resolution.

*The Board's recommendation was supported by the vote of the Association.*

RESOLUTION INTRODUCED BY DR. J. U. RAY

The following resolution was introduced by Dr. J. U. Ray:

*"Resolved, That effective with this meeting of the Association the salary of the Secretary of this Association be increased twenty-five dollars (\$25.00) per month, the same to be paid out of Journal funds."*

The Board recognises the fact that the Secretary's salary has been cut very drastically, and that enormous and additional duties have been imposed upon him in connection with editing and publishing the State Journal, which were not anticipated when his salary was originally fixed. It would, therefore, seem nothing but just to compensate him for these duties which have been thrust upon him and which have been so ably performed by him in these trying times. The Board, therefore, recommends the adoption of the resolution introduced by Dr. Ray compensating Dr. Cannon to the extent of \$25.00 per month in addition to his salary as Secretary of the Association.

Bearing in mind the fact that the salary of Dr. Baker was cut 52% in marked contrast to the 30% cut in salaries of all other State employees, and also in consideration of the fact that his reduced personnel has imposed upon him additional work and responsibilities, the Board feels that this Association is justified in voting a bonus of \$1,100.00 to him for the incoming fiscal year, even though it be necessary to draw largely from its reserve funds to do so.

Part II

Report Of The Board Of Censors As A  
Board of Medical Examiners

EXAMINATIONS HELD JUNE 25-27, 1935

|   |    |
|---|----|
| Total number examined.....                                  | 29 |
| Total number of certificates of qualification granted ..... | 27 |
| Total number of pro forma certificates granted.....         | 35 |
| (a) By reciprocity with other states.....                   | 34 |
| (b) From the National Board of Medical Examiners .....      | 1  |

APPLICANTS GRANTED CERTIFICATES OF QUALIFICATION

|                              |                           |
|------------------------------|---------------------------|
| Bayles, Louie Earl           | Minot, Wallace Dobbs      |
| Carpenter, James Lauler      | Moore, Charles Richard    |
| Carraway, Benjamin           | Parker, Martle Foy        |
| Monroe                       | Pitts, Edward Braxton     |
| Castellow, William           | Posey, Louis Claiborne    |
| Franklin                     | Rogers, Harold Lawton     |
| Click, Gustav Neri           | Skinner, Ira Clifton, Jr. |
| Coleman, William Ernest, Jr. | Stephens, Warren          |
| Comer, Edward Trippe         | Clayton, Jr.              |
| Creel, Gurley Akron          | Terry, Luther Leonidas    |
| Gilesby, Clarke Houstin      | Turberville, John         |
| Guffy, Joseph Laymon         | Killiebrew                |
| Holladay, Joel J., Jr.       | Williams, Charles Roy     |
| Howell, Julian Parker        | Williams, Norman Eric     |
| Lary, John Howard            | Wilson, Charles Henry     |
|                              | Ziemann, Alphonse Hays    |

RECIPROCITY APPLICANTS RECEIVED APRIL 1935-APRIL 1936

|                                  |              |
|----------------------------------|--------------|
| Beck, Chester Keith—Tenn.....    | Mar. 21, '36 |
| Brown, Daniel Renon—Tenn.....    | Apr. 20, '36 |
| Brown, John Richard—Mo.....      | Nov. 25, '35 |
| Chilton, Alfred Major—Tenn.....  | July 3, '35  |
| Colley, James Oscar, Jr.—La..... | July 3, '35  |

|  |               |
|--|---------------|
| DeRamus, William Henry—La.....                 | Jan. 21, '36  |
| Dodson, William Arlington, Jr.—Tenn.....       | Jan. 21, '36  |
| England, Francis Tillman—Tenn.....             | Jan. 13, '36  |
| Holley, Al Fonto—Ky.....                       | June 1, '35   |
| Jordan, Otis Leon—La.....                      | Oct. 1, '35   |
| Joseph, Kellie Nicholas—Ga.....                | Sept. 1, '35  |
| Justice, John Doyle—Ga.....                    | Jan. 27, '36  |
| Kendrick, James Erasmus, Jr.—La.....           | July 3, '35   |
| Kennedy, Frank Foster—La.....                  | July 9, '35   |
| Lonnergan, Leilas Ragan, Jr.—La.....           | Feb. 20, '36  |
| Majure, Ernest Odell—Miss.....                 | Dec. 17, '35  |
| McCarn, Dan Wilson—Tenn.....                   | Aug. 5, '35   |
| Mertins, Paul Stahl, Jr.—N. B. M. E. ....      | Apr. 18, '36  |
| Morgan, Harcourt Alexander, Jr.,<br>—Tenn..... | Mar. 30, '36  |
| Nickson, Hugh Clare—Mo.....                    | Sept. 1, '35  |
| Owen, Hugh Ryan—Mich.....                      | Oct. 4, '35   |
| Pettus, William Dean—Tenn.....                 | July 9, '35   |
| Rawls, Vance Quitman—Ky.....                   | Sept. 1, '35  |
| Raymond, William Matthew—Mo.....               | Apr. 13, '36  |
| Rosen, Herman Leon—Tenn.....                   | Apr. 14, '36  |
| Samford, Millard Westcott—Ga.....              | Mar. 27, '36  |
| Shannon, Paul Wolfe—Mich.....                  | Apr. 20, '36  |
| Snelling, David Barrow—S. C.....               | Dec. 27, '35  |
| Spruell, William Hugh—Tenn.....                | Nov. 5, '35   |
| Stickley, Courtney Smith—Va.....               | Aug. 22, '35  |
| Thompson, Paul Mason—S. C.....                 | Apr. 20, '36  |
| Treherne, Alfred James—Ky.....                 | Sept. 13, '35 |
| Whitehurst, William Laney—Tenn.....            | July 3, '35   |
| Williams, Joshua Warner—Ga.....                | Feb. 15, '36  |
| Wise, Bernard Oberdorfer—Tenn.....             | Apr. 9, '36   |

### Part III

#### *Report Of The Board Of Censors As A State Committee Of Public Health*

J. N. Baker, M. D., State Health Officer

To the Members of The Medical Association of the State of Alabama, sitting as a State Board of Health:

Gentlemen:—I have the honour, as your health executive, to submit herewith my annual report, covering the various activities of the Health Department during the past year.

It is gratifying to be able to report that with but one exception no disease of a serious epidemic nature has been visited upon the people of this State during the year just passed. It is heart-rending to be forced to record five human deaths in this State from rabies and the distribution of 5,038 complete Pasteur treatments, all resulting, seemingly, from a widespread blight of indifference and apathy on the part of our people at large. Quite too much sympathy is being expended on the worthless cur and his impecunious owner at the expense of human life and suffering and of community protection. The statistics of the Health Department eloquently proclaim that much the larger portion of our rabies problem, both human and canine, has its origin in the vagrant, ownerless dog, roaming wide over the countryside and through the village or town creating havoc in his trail. Inasmuch as the muzzle and

the leash are impossible of enforcement in this State, little hope for improvement need be looked for until there is better control of the dog population, through vaccination, tagging and the impounding of untagged dogs. One longs for an aroused public conscience to come to the rescue of the unheeded preachments of the Health Department. As regards other communicable diseases, the outlook is encouraging and the record speaks hopefully:

In 1935, provisional figures show that there were 61,565 births, or a reduction of 2,469 below the figure for the preceding year. This reduction is more apparent than real, because of the fact that the birth registration campaign conducted in 1934 is believed to have been the chief cause of the increase recorded in 1934. The birth rate was 21.9 per 1,000 population.

Deaths numbered 29,202 and the death rate—10.4—was slightly lower than the figure for the preceding year of 10.7. The stillbirth rate—48.9—continued to increase. Infant mortality rates have steadily increased since 1932, the rate in 1935 being 67.8 per 1,000 live births. The decline in the maternal mortality rate, begun in 1930, ended in 1935 and an upward turn in the rate—62.6—was recorded.

Death rates from typhoid and paratyphoid fevers—2.6, diphtheria—4.9, tuberculosis—63.4, and malaria—4.2, reached a new low point. The rate from scarlet fever—0.5—equalled the all-time low record.

The rate from appendicitis—8.9—has not been lower since 1925, the year in which Alabama was admitted to the death registration area; that from bronchitis—2.1—and whooping cough—6.2—has been lower only once.

Only once during the past decade has the death rate from suicide—5.9—been lower and that from homicide—19.7—equalled the lowest figure reached in the same period.

The death rate from measles, although not as high as the rate recorded in 1934, was the second highest recorded in more than a decade.

New maximum rates were established by cancer—59.4—and cerebral hemorrhage—73.1 per 100,000 population.

The rate from acute and chronic nephritis—82.1—has increased steadily for three years.

In 1935, as in the preceding year, heart disease was the leading cause of death. The provisional death rate—132.0 per 100,000 population—decreased. Pneumonia—all forms—became the second leading cause of death, the rate—85.3—being slightly higher than in 1934. Nephritis, which has held second place for several years, takes third place, the rate—82.1—remaining approximately the same as last year. Cerebral hemorrhage remains fourth in order of importance—73.1; the rate having increased slightly. Tuberculosis—all forms—which in previous years has held a more important position in the list of important causes of death, takes sixth place—63.4—and is replaced by accidents and other violence as the fifth leading cause, with the rate of 65.7, an increase of about 6 per 100,000 above the 1934 figure. Cancer



remains in seventh place, the rate—59.4—having increased by a small amount.

### MODERN CONCEPTS OF PUBLIC HEALTH

During the last decade of the past century and the first decade of the present century many of the major functions of official health departments centered around activities which necessitated frequent invocation of the police powers vested in such departments in order to adequately safeguard the public health. Cumbersome and hampering quarantines against yellow fever, typhoid fever, smallpox and other pestilential diseases and the abatement of nuisances and garbage control constituted the order of the day; and for the performance of such duties, other than for the medical officer in charge, training in law enforcement rather than in scientific principles constituted the necessary essentials of the personnel employed. Before science definitely pointed the way for intelligent control, through discovery of the cause and origin of many of these scourges to mankind, the only weapons available were the groping and clumsy practices springing from empiricism and improvisation. Outstanding examples of such haphazard methods of control are to be had in the approaches made against typhoid, malaria and yellow fevers; tuberculosis, diphtheria, bubonic plague and many others. And yet, when the records of this pre-scientific era are scrutinised, one is forced to marvel at the wisdom and fine discriminating judgment, based largely on critical observation and lucid reasoning, displayed by these pioneers in the public health field. A century and quarter ago, Thomas Paine, although himself not a physician, contributed an elaborate treatise on "The Causes of the Yellow Fever in New York City," which, to-day, would do credit to any epidemiologist, and in which, by indirect implication, he incriminates the mosquito without calling him by name.

Once the exact nature of these foes to mankind had been definitely charted by science, little time was lost in the practical application of the resulting facts to the betterment and improvement of human life in the mass. Thus, in a comparatively short time, we see many death-dealing diseases completely or partially mastered through the application of exact principles of sanitation to man's environment. Because of climatic and soil conditions, Alabama, in common with most other Southern States, has had to struggle with more natural enemies to mankind arising from environmental conditions than have our sister states to the north and east. This is reflected in our higher morbidity and mortality rate for such diseases as malaria, pellagra and hookworm; but, in a measure, being compensated for by a lower rate for such diseases as pneumonia and scarlet fever. Even in these tropical or subtropical diseases to be found in Alabama, steady and satisfactory progress is being made in their control, although they are far from being completely eradicated. A lasting and satisfying answer can only be had through adequate programs of environmental sanitation for our vast rural stretches; but these, too, can be conquered through education, toil and the wise expenditure of

public funds. Over and above these basic problems in public health, which still must claim attention, we cannot ignore the more modern concepts and advances now being made in the whole field of preventive medicine. Education constitutes the keynote of this modern scheme, to which must be closely linked the practising physician, who, to-day, is learning to think more and more in terms of prevention as well as of cure. Without his sympathetic understanding and aid, the newer, yet more difficult problems of venereal disease and tuberculosis control; of mental hygiene and of mental delinquencies and feeble-mindedness and of the psychoneuroses; of child health and of prenatal and maternal care cannot be satisfactorily advanced. So ominous and threatening are many of these things to the upward progress of civilisation that it behooves both the medical profession and the Health Department to apply to them their best thought and talent. If the present appropriation to the Health Department made by the State can be so stabilised as to be continuing and assured, without spasmodic curtailment through proration, and with the aid of certain federal monies coming to us through the Public Health Service and the Children's Bureau, the outlook is hopeful not only for expansion of field activities in the basic things of sanitation, but also for a substantial beginning to be made in the development of satisfactory programs for at least some of the more urgent problems mentioned above. None of these problems are new. They have long been in our midst and of their seriousness the practising physician is fully aware. It is upon these salients, in the fields of prevention and control, that the serious attention of the medical profession and of health workers must now be focused; society, neither financially nor biologically, can indefinitely withstand the mounting loads now being heaped upon it without having violence done to its essential parts. Is it not time that greater consideration were given to the role played by syphilis and its damaging end results to the nervous system, in crowding our jails, our almshouses and our mental institutions? A telling blow, struck earlier through education and adequate treatment, should be able to curb many of these costly and frightful end results. In like manner, many of the problems arising in the realm of mental health, both in the child and in the adult, can, if taken in time, be satisfactorily adjusted, and, in this way, obviate much future suffering, institutional care and consequent financial loss to the State. Tax monies spent in the financing of preventive programs in such important fields as these should be viewed in the light of good business and of sound investment rather than of reckless expenditure of public funds. But the path must be blazed and the leadership furnished by those who know and understand—the trained physicians. It is the hope of the State Health Officer that the services of the several standing committees of the Association, such as that on Mental Hygiene and on Maternal and Infant Welfare, as well as of those members devoting much or all of their time to these particular specialties, may be freely utilised in the development of plans, policies and programs to meet the needs in these newer fields of preventive medicine.

## ACTIVITIES OF BUREAUS

In the pages which follow there are presented the various activities conducted and a condensed summary of the results accomplished through the several bureaus of the Health Department. A perusal of this summary reveals that, because of increased amounts of funds actually made available by the State to the Health Department, together with the opportunities presented for the utilisation of relief workers in the several bureaus, the volume of work accomplished materially exceeds that of the year preceding.

County organisation has been steadily pushed forward until now there remain but ten unorganised counties; and it is not beyond the realm of possibility that, before the present year ends, Alabama may boast one hundred per cent organisation of its 67 counties for full-time health work. As far as available funds would permit, local health departments have been strengthened by the addition of personnel for sanitation and nursing, and the central staff through the reestablishment of activities and personnel suspended during the preceding years because of a lack of funds. The additional monies coming to us through the operation of the Social Security Act are now being, and will continue to be applied to these, the weakest spots in our health armour. Our first concern shall be to completely round out the field forces so that each county may receive what is considered a minimum of health protection. The average rural county has a population of around 25,000, for which the minimum health personnel should be one health officer, one clerk, one sanitation officer and two nurses. Simultaneously with the supplying of these pressing needs for more adequate health service to counties and communities, plans are being formulated for pushing forward into some of the more important newer fields of preventive medicine hinted at above. In these more untried and novel realms, particularly, the health administrator must preserve a broad perspective; viewing his multifarious problems as a whole and in their entirety; weighing each in the scales of relative importance to the population group served and of costs to the tax payer; discarding untried fads and adhering to sane, tested public health practices and remembering, always, to invoke the aid of the strong arm of the medical profession. Programs thus carefully prepared are surely less likely to become stranded on the rocks of opposition and unproductiveness than are those hastily conceived and poorly thought through. At this particular time, when effort is being made to rebuild and to expand health activities in this State, the above observations appear to be quite opportune and appropriate.

## COUNTY ORGANIZATION

It is with more than ordinary pleasure that reference is made to the department's work in the field of local health organization. A year ago, it will be recalled, attention was directed to the upward swing of the pendulum in the number of counties provided with health departments. Then, there were fifty-three (53) one less than the highest point attained in 1931. Today there are fifty-

seven (57), representing slightly more than 91% of the State's population. Accessions since the last report have been Coffee, Coosa, DeKalb and Henry. Only Bibb, Butler, Choctaw, Clarke, Clay, Fayette, Geneva, Greene, Hale and St. Clair remain to be organized. What a difference this presents from the picture of 1914 when sixty-six (66) counties were without such a beneficent service. One is reminded of what Dr. Jerome Cochran said in 1872: "Whenever, in the judgment of the county or municipal authorities, circumstances should justify some direct practical attempts towards an improved sanitary condition, the machinery" will "be ready," and can "be put into working order at once." Nearly sixty-four years elapsed after the time that statement was made before Henry County was ready to embark on full-time health work but the machinery was in place, as planned, and ready to function. Therein lies one of the unique features of the organization.

To a degree, relief personnel provided county health officers to assist in sanitation surveys, nursing and in clerical capacity has been helpful. To a greater degree, in all probability, the individuals themselves have been aided because of opportunity afforded them to become acquainted with public health procedures. No reference is made here to those operating under projects of concern to the Bureau of Sanitation. That Bureau's portion of the report will deal with the federal government's contribution to privy building and malaria control programs.

A year ago the Blue Ribbon Program was discussed under county organization. This report shows it under the Bureau of Hygiene and Nursing.

Rural Health Conservation Contests, sponsored jointly by the American Public Health Association and the U. S. Chamber of Commerce, were continued by seven (7) of eight (8) local affiliates of the U. S. Chamber of Commerce. Though no award came to Alabama, the creation and stimulation of interest of members of local chambers of commerce in activities carried on through all health agencies within the county is helpful beyond question and measure.

## BUREAU OF HYGIENE AND NURSING

The Bureau of Hygiene and Nursing for the State Health Department was created by the State Health Officer effective July 1, 1935. A physician was appointed as director of the newly created bureau. During the remainder of the year the nursing and midwife control programs were continued uninterrupted.

Plans for the maternal and child health program provided for in the Social Security Act were formulated and sent to the Children's Bureau for approval. These plans have now been approved. They provide for additional nursing personnel to many of the county health units and increased personnel to the Bureau of Hygiene and Nursing. Two additional divisions are provided in the plans for this Bureau: (1) The Division of Oral Hygiene and, (2) the Division of Child Hygiene.

The medical examinations of the 4-H Club contestants were conducted by this bureau in the district and State elimination contests. The girl and



boy who won in the State health contest were later awarded highest honors at the National 4-H Club convention in Chicago.

### *Division of Public Health Nursing*

Certain changes have been made in the organization and the work of the Division of Public Health Nursing during the year 1935. These changes have strengthened the division and enlarged its possibilities for service. The division continued to function as a part of the Bureau of Administration until July 1, 1935 when it became a division of the newly created Bureau of Hygiene and Nursing. At this time the Consultant in Public Health Nursing became Chief of the Division of Nursing.

#### *Division Staff*

The number on the division staff has remained the same as of January 1, 1935—a chief, two field advisors and a field advisor in midwifery. A change in personnel was made necessary by the resignation, February 15, 1935, of an advisory nurse. The vacancy caused by this resignation was filled by bringing a nurse from a county organization to the State staff.

The salary and supervision of the colored nurse assigned to the Movable School of Tuskegee Institute has been continued throughout the year. Such a service is justified by an increase in the number of colored people who may be made more health conscious by this contact. All teaching is supplemented by demonstrations and is adapted to the needs and possibilities for use in the rural homes.

#### *Assistance From The Civil Works and The Works Progress Administrations*

During the year additional nursing and clerical assistance has been again available through the Civil Works and Works Progress Administrations. This assistance has been of marked value to both State and County Departments of Health by supplementing the personnel of their staffs. Reports show the employment of ninety-five graduate nurses from this source for County Health Departments. These nurses, working under the direction of the county health officers, assisted with (1) the examination of school children; (2) the making of birth registration surveys; (3) the administering of toxoid; and (4) home visiting in selected cases.

Increased clerical assistance made possible the assembling and organizing of statistical data of value to State and County Departments of Health.

#### *The Training Of Additional Nursing Personnel*

Because of the few necessary changes in county nursing personnel the training station was not reopened during the year. Vacancies on county staffs were filled by carefully selected applicants who were given a short period of observation in a well organized county. This observation was supplemented by more intensive supervision in the county to be served.

During the year seventeen public health nurses were given this period of observation and assigned to county staffs.

### *The Advisory Nursing Service*

The advisory nurses have given full-time in assisting county health departments with the development of a broader and a better nursing program. Realizing the inadequacy of a county staff with but one nurse, an effort has been made to meet the need by increased group work. Groups already created by the county agencies have been used and new groups have been organized. Encouraging and assisting with such plans has been a worth-while advisory service. Familiar with all phases of the county program, the advisory nurse during her visits has given clerical as well as nursing assistance. The major objectives of an advisory visit are stimulation and appreciation of: (a) complete but concise records of work done; (b) an understanding and use of records for more efficient service; (c) the necessity of developing an ability to teach and to instruct; (d) the organization for group instruction; (e) the necessity for a visit plan as well as a lesson plan.

The advisory nurses assisted with eight maternity and infancy institutes that are reported in the report of the midwife control program. During the year a total of three hundred and twenty-nine advisory visits were made to sixty-five counties.

#### *The Midwife Control Program*

Four thousand nine hundred and sixty-seven midwives, and others not physicians, attended twenty-three thousand eighty-one mothers at delivery in Alabama during the year 1934. This represents 36% of the total deliveries reported for the year. Provisional figures show that there was a reduction in the birth rate for 1935. It appears, however, that there will likely be little change in the percentage of deliveries made by midwives in this State within the near future.

The midwife control program recommended by the State Health Department has been adopted in forty-nine of the fifty-seven counties having county health units, and in eight of the ten counties that are without health units. In some of these counties, however, only a portion of the program is enforced. The object of the midwife control program is to make the apparently necessary midwife maternity service in Alabama as safe as possible.

The midwife survey was completed in eleven counties during the year. Personal data sheets, letters to physicians and physical record forms were completed and permits to engage in midwifery were granted to one thousand three hundred and seventy-seven midwives.

One hundred and thirty-two field advisory visits were made to the counties by the nurse-midwife from the State Health Department during 1935.

A study of the delivery service in the State revealed a real necessity for more adequate instruction for midwives. A midwife manual was prepared containing laws regulating the practice of midwifery in Alabama, suggested midwife regulations, midwife safety rules, cautions, questions and midwife instructions explaining procedures, care of equipment, danger signals, and organization and functions of midwife clubs. Distribution

of these midwife manuals to county health units was begun in October 1935. It is planned that every county health unit and midwife club leader shall possess a copy of the midwife manual.

Dr. J. R. McCord, Professor of Obstetrics at Emory University, was asked to assist in planning the teaching program for the midwives. Through his instrumentality, a nurse-midwife, who has been an instructor in public health nursing for five years, came to Alabama to assist in determining procedures adapted to the teaching of midwives. This nurse-midwife instructor conducted a series of midwife institutes throughout the State which were productive of much good.

As soon as the midwife institutes were completed, the problem of properly instructing the county nurses was taken up. Upon her should ultimately rest the supervision of these midwives and the teaching of all practical procedures to be applied.

Eight maternity and infancy institutes have been held for county nurses. The institutes were scheduled so that one would be accessible to each county nurse. The nurse-midwife and an advisory nurse from the State Board of Health acted as instructors. The county nurses were taught the principles of teaching that they might use them for instructing midwives and mothers. The midwife manual compiled for the midwife institutes was the basis for instruction at these courses. These institutes lasted throughout two days. The first day was spent explaining the manual, the place the midwife has in the maternity service and in making a delivery, using the teaching procedures for midwife activities. A delivery, postpartum care and infant care were also demonstrated. Following the demonstrations the county nurses reviewed the procedure.

A total of seventy of the county nurses attended these eight institutes.

#### *Publicity*

During the year the Division of Public Health Nursing made the following contributions to the publicity and education program of the State Health Department: Radio talks 18, articles for *The Journal of The Medical Association of the State of Alabama* 4, articles for *Public Health Nursing* 1.

#### *Out of State Visitors*

There were five out of State visitors during the year.

#### *County Public Health Nursing Activities*

The major objective of Alabama's county nursing service for the year has been more and better care for its mothers and babies. To attain this objective all members of a family must be reached and all phases of a generalized program developed. Only the following counties have had more than one nurse on the staff for all or a part of the year 1935: Jefferson, Mobile, Montgomery, Talladega, Lowndes, Sumter, Colbert, Limestone. With but one or two nurses on a county staff the number reached is necessarily limited. Only by group teaching can she hope to reach more than a small portion of the people. Many group contacts have

been made possible through cooperation with home demonstration agents, Parent Teacher Associations and similar organizations.

The total number of public health nurses employed in the fifty organized counties January 1, 1935 was ninety-eight; December 31, 1935, in fifty-seven counties, there were ninety-seven.

#### BUREAU OF LABORATORIES

##### *Diagnostic Division*

During the year 1935 the Bureau of Laboratories examined the largest number of specimens since its inception. For the twelve calendar months of 1935, 327,711 samples were received and the results reported to practicing physicians or county health officers, or both. The year that nearest approached 1935 in volume of work was 1931, when 292,673 specimens were examined.

The number 327,711 specimens for 1935 exceeds that of 1934 by 83,012, or 33.9%. The increase over the former peak year of 1931 was 35,038 or 11.9%. Owing to the large intestinal parasite survey which is being carried on in every county in Alabama the most marked increase was fecal specimens for this type of examination. During the calendar year of 1934, we examined 40,759 specimens for intestinal parasites, but in 1935, 106,379 were reported. This makes an increase of 59,520 or 122.53%. The fact that ova counts were run on all specimens, where sufficient material was present, made an additional burden on the laboratory system.

A detailed comparison of the specimens, other than intestinal parasites, examined in 1934 and 1935 gives some interesting results. In 1935 a decrease of approximately 600 cultures for the diagnosis of diphtheria were made by the Bureau of Laboratories. Cultures on contacts and release increased approximately the same amount and there were more tests for virulence. Tests for Vincent's infection were 103 more than in 1934. Various specimens submitted for typhoid, including blood for agglutination, blood cultures, feces and urine for diagnosis, urine for carriers all were greater than the previous year, while the number of feces for carriers was smaller. This is rather surprising because no extensive outbreaks of typhoid, similar to those which occurred in Decatur and Phenix City, in 1934, have been noted during the past year. So far as typhoid carriers are concerned the Department has discouraged the routine testing of dairy and food handlers unless control conditions for the obtaining of more than one proper specimen can be attained. Blood smears for malaria were about 500 more than in 1934. This was probably due to the fact that the average practitioner was more alert to this disease during 1935 than 1934 because it almost reached epidemic proportions in the latter year. Again, bloods for the Wassermann and Kahn reactions increased over the previous year. Unfortunately there was some, but not a comparable increase in the number of spinal fluids received. There were almost 1,000 more pus smears examined for gonorrhea in 1935 than in 1934. Due to the activities of the chest clinic, 1,278 more microscopic smears



for tubercle bacilli were examined during the past year than in the previous one. Animal heads received showed a decline, due undoubtedly to the drastic control measures which had been enforced in Birmingham. Under the classification of "miscellaneous" fewer specimens were received for *E. histolytica* than in 1934, but a marked increase in nasopharynx cultures for the meningococcus occurred. Two large carrier surveys, one at Fort Morgan and the other at Tuscaloosa, were carried on after several cases had occurred in each place.

#### *Vaccine Division*

The following biologic products were made and distributed during the calendar year 1935:

Typhoid vaccine: 823,870 cc., or 329,520 complete immunizations.  
Rabies vaccine: 5,038 complete treatments.  
Alum precipitated diphtheria toxoid: 131,722 cc.  
Schick toxin: 4,402 cc.  
Tuberculin: 590 cc.  
Sterile distilled water: 164,800 cc.  
Silver nitrate ampules: 67,305.

It will be seen that, excluding rabies vaccine and Schick toxin, the distribution of every biologic was increased. This is especially marked in the alum precipitated toxoid where at least 25,000 more immunizations were administered in 1935 than in 1934. Thus, in spite of a more wide-spread use of toxoid, less Schick testing is being done. It is believed that such a practice is to be condoned. The use of tuberculin, due to the activities of the chest clinics, was increased. The volume of sterile distilled water and silver nitrate ampules was markedly greater than in 1934. It is gratifying to note that the number of silver nitrate ampules is more nearly approximating that of the birth rate in Alabama.

The decrease of approximately 500 rabies treatments is undoubtedly due to the control measures which were instituted in the city of Birmingham. The vaccination and licensure of all dogs were made mandatory shortly before the first of January, 1935 and approximately 17,000 dogs were given immunizing rabies inoculations, and 7,000 were destroyed. A marked decrease in the number of rabid animals and the treatments distributed was discernible. Formerly the demand from the city of Birmingham was the largest of any city in the State.

During 1935 certain changes recommended by the U. S. Public Health Service were made in the methods employed for the manufacture and distribution of biologics. These changes have been made because the Bureau of Laboratories deems it wise to hold a license for the manufacture of these products. The guinea pig test for the potency of alum precipitated toxoid has been begun. The strain which was employed for the production of typhoid vaccine has been changed, and in place of merthiolate for killing and sterilization, heat plus tricresol have been substituted. During 1935 the triple typhoid vaccine has not been produced, but, following the experience of the Army and Navy, a single typhoid strain, without the addition of the paratyphoids, A and B, has been employed. This has involved the purchase of more apparatus but

it is believed that the vaccine laboratory is now adequately equipped.

After considerable experimental work changes have been made in the production of our silver nitrate ampules. Formerly a mixture of beeswax and paraffin was used, but it was found that there was considerable deterioration of the solution. For that reason, until a satisfactory ampule could be evolved, monthly manufacture was essential. Now, by using a proper beeswax, paraffin and parawax, a paraffin lined ampule is produced. It is hoped that the deterioration of the silver nitrate solution will be greatly retarded by this procedure.

After a careful investigation of the cost of production and commercial prices, it was found that tuberculin could be purchased in bulk more cheaply than it could be produced in the Bureau of Laboratories. Furthermore, the biologic which could be bought was a standardized one. Since facilities for the safe preparation of tuberculin were not available, it was decided that, in the future, all this biologic would be obtained in bulk from a commercial house and packaged here.

#### *Research and Investigation*

While continuing the investigations which have been in progress for a year or more, the Bureau of Laboratories has instituted several new research projects, some of which are being carried on in collaboration with other bureaus of this department.

*Diphtheria:* An attempted refinement of alum precipitated toxoid is still under way. During the past year a number of articles have appeared questioning the value of this product both as to its immunizing qualities and the length of the immunity produced. Also, there has been considerable controversy concerning the value of the Schick test and the relation of the Schick test to the antitoxin unitage in the blood of the individual. For that reason an extensive program has been evolved in which field results will be correlated with those obtained in the laboratory. This project is well under way at the present time, but it is too early to give final results. The work is still in progress on a new differential medium for the rapid isolation of the diphtheria bacilli for virulence test.

*Typhoid:* As stated above, the strain of typhoid which is being used for the preparation of vaccine has been changed, and the old Rawlings culture substituted for the Alabama strain formerly in use. A rather large number of Rawlings strains have been collected and are receiving intensive study since variation and dissociation is indicated in many of them. Work has continued on a possible method for the measure of typhoid immunity, and the results will be published shortly. The isolation of the typhoid bacillus from stools and urine is still being studied, and it is hoped to perfect a method whereby the dysentery bacillus also may be detected.

*Intestinal Parasites:* The state-wide intestinal parasite survey which was begun in collaboration with the Bureau of Preventable Diseases over a year ago is still under way. At the present time the children of 33 counties have been adequately surveyed for the presence of intestinal parasites. Ova counts have been run on all positive specimens where sufficient feces was available. Over 100,000

specimens have been examined. The results in many counties have been surprising, because worms like *Ascaris lumbricoides* and *Taenia nana* have been found to be more prevalent than was formerly supposed. The efficacies of tetrachlorethylene and a combination of oil of chenopodium and carbon tetrachloride as anthelmintics have been thoroughly tested. The results will appear shortly in a series of papers. It is hoped that during the next year the remaining counties will be finished and a certain number of them will be re-surveyed to obtain data on the familial groups. If satisfactory arrangements can be made, the value of hexylresorcinol in the treatment of intestinal parasites will also be investigated.

**Malaria:** As stated in the 1934 report it was desired to study certain restricted areas where more than one complete survey could be made on the population group and where atabrine was being used for treatment as a control measure. However, such areas were difficult to obtain and in only one place, Lake Martin, was a second survey made. The results have not been tabulated as yet.

The Bureau of Laboratories collaborated with the T. V. A. in a survey of seven counties in the Tennessee Valley basin. One technician was loaned to them and her salary paid by this Department; another was given leave of absence while this work was in progress. A survey of the inmates of each fifth house and school children constituted this project. Splenic indexes were made at the time blood smears were taken on the school group. Approximately 8,000 blood examinations were made, of which between 7% and 8% were positive. Some very interesting data were collected concerning the correlation of enlarged spleens and positive blood in the white and colored groups.

**Typhus:** The typhus fever project which was begun on November 1st, 1932 and in which the Rockefeller Foundation and the U. S. Public Health Service and the Alabama State Department of Health collaborated, was discontinued on May 31st, 1935. An intensive ectoparasitic survey of various animals found in the typhus fever area had been completed. Susceptibility tests on the fauna of that region had been carried on in 1934 and was continued during the period of January 1st, to May 31st, 1935. A large number of various species of animals were tested, but it was believed that, until further studies had been made, none of these investigations should be published. On June 1st, the U. S. Public Health Service moved the typhus laboratory to the Quarantine Station at Mobile. There the susceptibility of various animals is still being tested and an attempt is being made to isolate strains from various typhus fever patients. It is hoped that a more careful study of cases of typhus fever can be made in rural areas under an enlarged program which may be made possible with Social Security monies.

#### *Papers and Publications*

1. Baker, J. N.; McAlpine, J. G.; Gill, D. G.: "Endemic Typhus in Alabama." Publ. Health Rep. Vol. 50, pp. 12-21, January 4, 1935, No. 1.

2. Baker, J. N.; McAlpine, J. G.; Dowling, J. D.: "Rabies—A Continuing Challenge." Paper

presented before the Section of Public Health of the Southern Medical Association, St. Louis, Mo. November 20th, 1935.

3. Denison, G. A.; Hunter, F. R.: "The Control of Rabies in a Southern City." Paper presented at the Southern Branch of the American Public Health Association at the meeting of the Southern Medical Association. St. Louis, Mo. Nov. 20th, 1935.

#### *The Rabies Situation*

For the first time in several years the number of positive heads and antirabies treatments distributed decreased. As has been stated above, this was due to an adequate control program in Birmingham. This called for compulsory vaccination and licensure of all dogs in the metropolitan area of Birmingham. The paper submitted by Dr. G. A. Denison and Mr. F. R. Hunter shows conclusively that either the vaccination or the activities of the pound, or possibly both, were responsible for the marked decrease of rabies in that area.

During the regular session of the Legislature 1935, a bill, which later became an Act, was sponsored by the State Department of Health. It made compulsory vaccination, the appointment of a rabies inspector and the establishment of pounds mandatory. However, by various amendments the fee which could be charged by the rabies inspector was cut to \$.25, making the enforcement of this Act utterly impracticable. Furthermore, certain sections made it impossible for municipalities which already had ordinances to apply their provisions. Hence, it has been decided to attempt revision of this Act during the present special session of the Legislature.

With the cooperation of the Rockefeller Foundation it is hoped that an extensive research program on rabies and the efficacy of canine rabies vaccine may be tested during the forthcoming year. There are a number of unsolved problems in connection with this disease which could be investigated in Alabama. The vast amount of raw material which is available here would be especially conducive to investigational work in this area.

For several years the State Department of Health has had an appropriation of \$30,000 for the manufacture, distribution and administration of rabies vaccine. Until 1935 this appropriation was not prorated as has been the case with many others. According to a ruling by the Attorney General this has been cut for the fiscal year 1935-36 to approximately \$7,900. This is totally inadequate for the production and administration of the number of treatments which are required. At the present time there is not enough in this fund to pay for the animals which will be required for the rest of this year. Unless additional monies are found it will be necessary to stop any further activities in this field within two months.

#### *The Serological Tests for Syphilis*

Again the specimens submitted for the serological tests for syphilis have increased in number. During 1934 part of the increase which took place was due to the activities of the T. V. A. which submitted specimens to the Decatur Laboratory on all new personnel. However, this was discontin-



ued in July of 1935 but in spite of this fact an increase of approximately 5,000 specimens is noted.

Due to the pressure which was placed on the one serologist at the Central Laboratory, who prepares all reagents, submits test specimens and performs a large number of tests herself, an extra technician was added to this division. The benefit of this has been amply demonstrated. Also, during the past year the serological laboratory has been more or less segregated from the rest of the laboratory, making for greater efficiency.

The U. S. Public Health Service has instituted a series of comparative tests in which various state laboratories are collaborating. Alabama is one of them. It is felt that frequent checks on the various procedures for the detection of syphilis is most important and should be a matter of routine. A special series of specimens have been sent for the Wassermann test only, and another for the Kahn. The latter are still in progress. The results should be available in the next few months.

Check specimens are sent from the Central Laboratory to all branch laboratories once a week, except during the summer months.

#### BUREAU OF PREVENTABLE DISEASES

In the field of the acute communicable diseases, the year 1935 was, on the whole, a satisfactory one. Typhoid fever, which, for years, has been used as a measuring rod of health work, set an all-time low record in the State, with fewer than 500 cases reported. Fifty-two of these cases, or almost eleven per cent of the State total, occurred in Butler County, which does not have a county health department. When this situation was detected immunization clinics were immediately inaugurated in this county; also in two other unorganized counties—namely, Hale and Greene. As a result, approximately 25,000 people received typhoid inoculations in these unorganized counties. Diphtheria, likewise, showed a decrease of some 400 cases from the preceding year and it is hoped that this is only the beginning of a steady and continuing decrease. Toxoid is being administered in increasing quantities over the entire State and if this immunization program is continued, Alabama should reach the enviable record set by some of the northern states.

Compared with 1934, typhus fever remained about stationary. The extensive rat destruction program carried out in 1934 throughout the southeastern portion of the State reduced this disease from its high point in 1933; but it is evident that there must be a continuing program to curb the health and property damages done by activities of this rodent. Rat-proofing of buildings, particularly of those in which food stuffs are stored, is an important and logical procedure and efforts have been directed along this line during the past year. Through a program under W. P. A. auspices a real beginning has been made and it is hoped can be further extended during this year.

Fortunately, the widespread epidemics of poliomyelitis which occurred in some other southern states did not materially affect Alabama. The number of cases reported was within normal limits and these cases were widely scattered throughout the State. The newer vaccines, from which so

much was expected, proved to be inefficient or even dangerous and their use was not recommended by the health department.

Epidemic meningitis has been on the upgrade throughout the country for the past year, and Alabama, likewise, experienced an increased incidence of the disease. The problem of control is a difficult one, particularly when the disease occurs in a camp or prison where crowding is likely to occur. Transient Bureau camps created a difficult situation in this regard also; but fortunately no extensive outbreaks occurred.

Malaria was very prevalent during 1935. The disease appeared unusually early in the year, but the dry summer interfered with mosquito production, and the incidence during the fall months was lower than expected. An intensive program of control on one of the impounded lakes was inaugurated, using drug therapy in the form of atabrine and p'asmochin, and with apparently good results.

The hookworm survey, begun on a small basis the previous year, was extended to other counties, and it is hoped that this year will see the completion of a state-wide survey, embracing all school children and in certain counties, a familiar survey as well. Much interesting material on the prevalence of various other intestinal parasites is being discovered and it is apparent that, in certain parts of the State, hookworm infection is still a real problem.

The tuberculosis clinics, sponsored by the department, continued their diagnostic work. Since the re-inauguration of this diagnostic service, clinics have been held in every county of the State except three, where local clinics are available. In 1935 a total of ninety-one clinics were held and 4,406 patients were x-rayed and studied. 917 of these gave evidence of tuberculosis, with 607 being diagnosed as pulmonary tuberculosis, and the balance as a childhood type infection. An additional 191 were classified as strongly suspicious of having tuberculosis, but requiring further study and evidence to definitely establish the diagnosis.

In the field of treatment, the sanatorium at Decatur, Morgan County, was opened late in the year and is helping to solve the problem of hospitalization in the Tennessee Valley. No plans have yet been worked out to finance the institution at Scottsboro, in Jackson County, but it is hoped that it may be operated as a tri-county project, to serve the contiguous counties of DeKalb, Marshall and Jackson, and efforts are being made to accomplish this end.

In the realm of venereal diseases, a limited program was continued throughout the year within the limits of funds made available for this activity. Drugs for the treatment of indigent cases of syphilis were made available, with particular emphasis being placed on the treatment of the early infectious case and of the pregnant mother. The department is hopeful that, during the present year, it will be possible to materially enlarge the scope of activities in this important field through programs now being worked out in this Bureau.

It is planned, if possible, to re-establish many of the venereal disease clinics formerly operated, and

that a more liberal program of assisting the practicing physician in the treatment of his cases may be inaugurated. Definite plans for systematic follow-up of cases and for epidemiological studies of the early case will unquestionably tend to limit the spread of venereal diseases, which, because of frequent embarrassing and delicate social ramifications, make them so difficult of control.

#### BUREAU OF SANITATION

##### Division of Engineering

The Bureau of Sanitation operates as two divisions; namely, the Division of Engineering and the Division of Inspection. Activities of the former deal broadly with public water supplies, malaria control, pit privies, septic tanks, sewers, sewage treatment and typhus fever control. Those of the latter deal largely with food handling establishments, hotel, restaurant and jail inspections, milk control, bottling plants, oyster and shell fish control.

The diseases which are directly affected by this work are typhoid fever, dysentery, hookworm, malaria fever, Brill's fever (typhus), skin diseases, septic sore throat and diphtheria, and also food poisoning. To an extent, the means of transfer of other diseases are affected, as undulant fever, non-pulmonary tuberculosis, trench mouth and others.

**Water Supplies:** The supervision of public water supplies falls into two broad categories; namely, (a) water supply inspection for the purpose of aiding in securing for the users of such supplies, safe, satisfactory and palatable water for domestic consumption, and (b) a study of plans and specifications for approval and issuance of permits for new plants, additions, modifications or other changes proposed by existing plants.

A total of 286 inspections were made of 201 plants, which represent 234 supplies. The estimated population which these plants supply is 1,072,679 or 40.5% of the total population of the State. Approximately 880,500 people or 95.2% of the people living in incorporated communities and 875,500 people or 98.7% of those living in incorporated communities of 500 or more have public water supplies available. All supplies were inspected with the exception of twenty-three. Twenty-one of these are located in Jefferson County where there is a total of thirty-seven plants. The Jefferson County water supplies are normally checked by the health organization of that county which maintains its own technical staff for this purpose.

Final plans and specifications on proposed projects in thirty-five towns were checked, approved and forty-eight construction permits issued.

New plants were completed and put into operation in nineteen towns affecting a total population of 22,000 people.

On December 20, 1935, a Federal project for "Sealing Abandoned Coal Mines for the Protection of Public Water Supplies" was released by the W. P. A. in three counties: Jefferson, Tuscaloosa and Walker. The proposed program in this connection was a continuation of the project which ended on

March 1, 1934, and came under the supervision of the Engineering Division. Labor, transportation, material and equipment were set up in the project and released to the counties. One hundred and seventy-seven men were employed on this project. This number includes one Assistant State Director, 15 foremen, 8 timekeepers, 3 supervisors and 150 common laborers. The workmen were organized and preparation made for construction work to be started in January 1936.

The purpose of the mine sealing program is to decrease the acid mine drainage into streams now being used as a source of water supply and likewise into streams that may serve this purpose in the future. Excluding oxygen from the mines prevents the formation of acids with the pyrites present in the mines. Acid mine drainage in sufficient concentration not only menaces water supplies in its original state, but decomposes organic matter which causes unpleasant tastes and objectionable odors. Alabama streams have not at this date been affected to any great extent by acid mine waters, but, with extensive coal mining operation and the exploration and development of high sulphur coals, this might in time become a serious problem.

**Malaria Control:** During the year 1935 a large amount of malaria control drainage was accomplished through the cooperation of the Works Progress Administration and the United States Public Health Service.

The Alabama Relief Administration which was organized in 1934, following the Civil Works Administration, was continued during the first half of 1935. Local supervision of this work was provided by county health departments, thirty-nine of which had sanitation officers of their own. Drainage was undertaken under this program during 1935 in forty-one counties. The estimated area drained was 1,600 acres, requiring 63 miles of new ditches and 82 miles of existing ditches reconditioned, 175,000 cubic yards of excavation and 404,782 man hours of labor. It is estimated that these projects benefited some 170,000 people and gave employment to the equivalent of 500 men working 140 hours per month for a period of six months.

The Works Progress Administration replaced the ARA during the summer, and the transformation occurred during July, August and September. An application for a state-wide malaria control project by drainage with labor, local supervision, material and equipment, with transportation to be furnished by the Federal Government was prepared, submitted and approved at the beginning of the WPA program. Technical direction was assumed by the State Health Department. This project was released by individual counties where labor was available and has been placed in operation in thirty counties. Discontinuance was later necessary in seven counties because of insufficient labor.

An average of about 2,000 men have been employed. There were forty-nine projects completed, 88.5 miles of new ditches constructed, 22.2 miles of old ditches reconditioned, 344,561 cubic yards of dirt excavated and 1,204,639 man hours labor used during 1935. The completed projects



drain an area of 2,762 acres and benefit some 64,726 people.

A reconnaissance survey of the Luxapallila drainage canal was made jointly by a representative of the Mississippi State Health Department and a member of the Division of Engineering. This canal, constructed in Alabama several years ago, is filling with silt very rapidly at the outlet end at the Mississippi state line and causing the lowlands to be flooded. A history and blood survey made in April by the Lamar County Health Department revealed the following:

| Distance from Luxapallila Canal                | No. Histories & Blood Smears Taken | % Positive Histories 1934 | % Positive Histories 1935 | % Positive Blood |
|--|------------------------------------|---------------------------|---------------------------|------------------|
| 0-1/2 mile                                     | 530                                | 60.5                      | 44.0                      | 9.4              |
| 1/2-1 mile                                     | 226                                | 52.7                      | 38.1                      | 8.0              |
| Town of Vernon (about 15 miles from the canal) | 525                                | 20.6                      | 8.2                       | 3.5              |

These data indicate the seriousness of this problem.

During 1935 special effort was directed towards malaria control on artificial impounded projects. There were several reasons for this, the principal ones being the numerous new projects proposed and constructed and the unusual early mosquito production. A total of 281 inspections of major and minor projects by representatives of the State and county health department was made. Special reports of 25 inspections of major projects and 26 inspections of minor projects were prepared. Standard report forms were used in recording the remaining inspections.

A malaria history and blood survey was made during May in the vicinity of the lake formed by the Widows' Bar Dam on the Tennessee River, in Jackson County. There were 402 people living in the area surveyed; 119 or 29.6% of these gave a history of having had malaria in 1934 and 39 or 9.7% up to the date of the survey in 1935. Thick blood smears were taken from 332 people; 45 or 13.5% of these were positive for malaria.

A similar survey was made during the latter part of August in the vicinity of the Federal Fish Hatchery, in Perry County. A cross section of the inhabitants of this area included 80 people studied; 27 or 33.7% gave a history of having malaria in 1934 and 44 or 55.0% reported having had malaria in 1935. Blood smears were taken from 66 people; 13 or 22.7% showed positive for malaria. An investigation in a community of Chilton County during May revealed some valuable information. A search for *Anopheles quadrimaculatus* breeding and adult mosquitoes was negative. The community is located two or more miles from a large impounded lake, but practically all the people who gave a history of having malaria in 1934 and 1935 also gave a history of overnight visits to camps on the lake.

Data were collected from persons in the Birmingham area having positive blood for malaria during 1933, 1934 and 1935 by relief workers. These data indicated that about 50% of the people involved had a history of visits to known endemic malaria areas prior to the onset of the disease. When requested, advice and direction has been given to

municipalities regarding mosquito control campaigns. Visits to ten municipalities were made and reports written regarding such programs.

**Sanitation:** The greater portion of the sanitation accomplished during 1935 was through the use of labor made available by Federal agencies, which came under two programs, Alabama Relief Administration and Works Progress Administration. Property owners furnished the materials necessary for construction.

Under the Alabama Relief Administration program no provisions were made for supervision and transportation. Existing health personnel or "white collar" workers gave direction to the project. These programs were conducted in forty-eight counties.

Adequate provisions for supervision, transportation and equipment were made in the school and community sanitation project during the Works Progress Administration. The financial control of this project was based upon an allowable man-year cost. Labor in the various counties was directed by local county sanitation officers, or by supervisors under technical direction of the State Health Department.

During the latter part of the year two school sanitation projects were submitted to the Works Progress Administration. One of these was granted by the WPA, utilizing all steel superstructures. No construction had been started on this project at the end of the year. The other is still in a formative stage. Double benefit will be derived from sanitation of rural schools. Along with protection of the public health secured, the educational value of this sanitation will make itself felt in the accomplishment of community sanitation in future years.

During the year, 4,111 new privies were constructed, 2,059 privies repaired and 470 sewer connections made, serving a total population of 37,715.

**Sewage:** Preliminary plans on thirty-one proposed Public Works Administration and Works Progress Administration municipal sewerage projects were checked and tentatively approved. Tentative approval was necessary from this department on each project for obtaining final approval and financial aid from the Federal Government. After financial assistance was assured for the project, the engineers proceeded to prepare and submit to this department final plans and specifications. Thirteen sets of such plans and specifications were received, checked, approved and construction permits issued.

In general, field work consisted of investigations prior to the installation of proposed systems, inspections of new plants upon their completion and special investigations and inspections for operation of old plants. A total of twenty inspections were made.

Sewerage systems were completed and put into operation in eight towns. These new systems affect a population of 28,000 people.

**Typhus Fever Control:** Recognizing endemic typhus fever as a major public health problem, especially in South Alabama, and rodent control as the solution, the services of the Chief of the

Division of Rodent Control of the United States Public Health Service were secured to train men in this specialized work during the months of May and June. Five men were trained and employed through July. During this time a survey was made of four cities where a total of 143 buildings were surveyed and written recommendations submitted to property owners. Five establishments were permanently rat-proofed, and eighteen were ready to get under way when this work was discontinued, due to the lack of competent supervision. A total of 4,318 miles was traveled during this time.

In August, an educational program was instituted and continued through November. This consisted of lectures to civic clubs, parent-teacher associations and high schools, as to the dangers of rat infestation and modes of elimination. The picture, "No Good on Earth," was shown at the same time. Over 12,000 persons attended these showings and lectures.

Surveys were made of conditions in Montgomery, Mobile, Dothan and Greenville where the following conditions were noted:

**Montgomery:** All parts of this city were found to be infested, with the *R. norvegicus* rat being predominant. The business district was heavily infested, the meat packing plants, wholesale grocery stores and eating establishments being in a deplorable condition. No effort was being made to control rodents or to protect food products from contamination; rats were invading the cold rooms in some of the larger establishments and articles of food were being soiled by rat urine and feces in practically all of the stores.

**Mobile:** All parts of this city were infested although several of the better retail stores were practically rat free. During the campaign two wholesale meat plants were rat-proofed. No wholesale grocery stores were rat-proofed, although all were infested.

**Dothan:** All sections of this town were infested with rats, the cafes, retail and wholesale grocery stores being in a deplorable condition. By August 1st all meat packing plants, with one exception, were rat-proofed according to recommendations.

**Greenville:** This inland city had more rats per population than any city surveyed. No attempt had been made to control the rat in any establishment. The only cold storage plant in the town was surveyed. The insulation was found to have been destroyed by rats and they were harboring in the walls. At least three buildings in this city will be rat-proofed in a short time.

The educational program conducted is beginning to bear fruit and requests are being received for rat-proofing and extermination. Rat life and the dangers of rat-borne diseases are being taught in the Mobile County schools. All buildings being constructed with Federal funds must submit plans and specifications of buildings and include rat-proofing methods. Several buildings in Montgomery, Mobile and Dothan will be rat-proofed during 1936.

Two hundred and ninety-two cases of endemic typhus fever were reported in Alabama during 1935 and eleven deaths recorded. It appears that

this disease has secured a firm foothold in the State and that a permanent control and educational program is necessary at this time to combat the disease. Complete eradication of the rat is almost impossible, but the rat birth rate and flea incidence can be reduced by rat-proofing. An enlightened public will avoid rat infested establishments and assist in controlling rat life. The educational work should be continued in the public schools, colleges, and to parent-teacher associations, civic clubs and especially to owners of property. A trained personnel should work with county health organizations and be available for supervision of building construction and checking plans and specifications. Ordinances should be passed and enforced for rat-proofing buildings that are to be repaired as well as new construction. No food handling establishments or hotels should receive a perfect rating unless rat-proofed. Physicians should be stimulated to report cases promptly and suppression measures should be instituted in the area where the disease was contracted. Application of sound epidemiologic practices should obtain in the control of this disease as in other communicable diseases.

**Drafting:** Drafting incidental to all phases of the Bureau's activities, preparation of county maps, town maps, graphical presentations of various disease death rates and miscellaneous drawings for which need arose occupied the time of a full-time draftsman. These drawings totaled one hundred and twenty-five. All plans for new water and sewer systems and for additions to existing ones, submitted for the Department's approval, were filed in a new cabinet designed in the Department.

As a courtesy and to aid other public agencies, one hundred and twelve county map prints were furnished at cost. The tracings of fifty-eight county maps in the files of the Bureau were lent a total of 103 times.

**Miscellaneous:** The Division personnel accomplished very little along the lines of lectures and motion picture shows during the year. The value of visual education is known and the county health departments have made progress in securing equipment for such. A stock of used projectors, films screens, etc., was disposed of at reduced price to the county departments. Advice and suggestions were given to the health workers concerning motion picture equipment. There were eight county departments that purchased 16 mm. equipment, bringing the total to twenty-one having this size equipment. The proper use of health films should result in a better understanding and cooperation by the public.

There was a decrease in the number of swimming pools constructed in the State over the preceding year. This can be explained by the activities of Federal agencies, in 1934, during which time many communities took advantage of the opportunity and constructed swimming pools. There was a great deal of correspondence regarding the operation and maintenance of pools already constructed and some concerning new construction. A general improvement in construction, maintenance and operation of bathing places is believed to have



occurred through the volunteer efforts of the owners.

#### *Division of Inspection*

A comparison of the annual tabulations of inspection activities in 1934 and 1935, brings out, first, the fact that 13,155 inspections, 2,357 more than in 1934, were made during the calendar year of 1935. This is an increase of nearly 21%. Part of this increase was due to the fact that the staff consisted of four men during the entire twelve months, but even when the differences in man-months are taken into consideration, the activities of the Division, as measured in numbers of inspections, increased approximately 7%.

The main increases were in carnival and circus concession, meat market, crab meat pickery, sources of milk for manufacturing purposes, ice cream plant, and pasteurizing plant inspections, and indicate, in general, the divisional activities which were stressed during the year.

The leaders in the crab meat picking industry requested the establishment and enforcement of regulations to govern the picking and packing of the product, in order that the reputation of crab meat might not be ruined by the unsafe product marketed by a few pickers. Such regulations were adopted by the Committee of Public Health on June 24, 1935. Following the adoption and enforcement of these regulations, material improvements in picking shop conditions were effected, and certificates were issued to 19 pickers and 3 dealers in this State, and to 2 pickers in Mississippi. The certificate numbers were stamped upon the exterior of every can of crab meat sold from these establishments.

The maintenance of satisfactory sanitary conditions at fair grounds, carnivals, and circus setups occupied a major proportion of the time of the staff from mid-September to November 30. Fair, carnival, and circus managements were required to provide sanitary toilets for personnel and patrons, and to police them and clean or remove them, so as to avoid nuisances when the organization moved to the next stand. The Division was adamant in declining to permit the manufacture of such products as "Frozen Custard" or "Frozen Delight" on circus or fair grounds, because the most optimum practical conditions under which such products are made in movable equipment do not conform to the specifications of the Ice Cream Regulations of the State Board of Health. A total of 3,977 inspections of food, beverage, and candy concessions at fairs, carnivals, and circuses was made, and several hundred inspections of toilet facilities.

Because the publication of the "Compilation of Public Health Laws, and Related Statutes" was an activity of the Division of Inspection in 1934, the drafting of bills for amendment or repeal of a number of sections of the statutes became the logical function of the Division. Sixty-five sections of the Public Health Laws were amended, two new acts (Senate 245 and 308, by Kelly) were passed, and twenty-five sections were repealed. This legislation appeared as an appendix to the January number of *The Journal*.

Opportunity of the availability of "White Collar" personnel early in 1935 was taken to estab-

lish a library for the State Health Department. Space had been prepared with CWA labor. Following the discontinuance of "White Collar" projects, the librarian supplied through this means was permanently employed. The library consists of more than 850 bound volumes, and several thousand bulletins, pamphlets, and unbound journals, all of which are rapidly being catalogued.

As reported in the March number of *The Journal*, the Division has organized the physical-medical examination of milk handlers, and established a clearing house for information concerning these individuals.

#### VITAL STATISTICS

A brief summary of the vital statistics in 1935, based on provisional figures, is as follows:

There were 61,565 births in 1935, representing a reduction in number of 2,469 below the figure for the preceding year. This reduction, however, is more apparent than real, because of the fact that the birth registration campaign, conducted in 1934, is believed to have been the chief cause of the increase recorded in that year. The birth rate was 21.9 per 1,000 population.

Deaths numbered 29,202 and the death rate (10.4) was slightly lower than the figure (10.7) in 1934. The stillbirth rate (48.9) continued to increase. Infant mortality rates have steadily increased since 1932, the rate in 1935 being 67.8 per 1,000 live births. The decline in the maternal mortality rate, begun in 1930, terminated and an upward turn in the rate (62.6) was recorded.

Death rates from typhoid and paratyphoid fever (2.6), diphtheria (4.9), tuberculosis (63.4) and malaria (4.2), reached a new low point. The rate from scarlet fever (0.5) equalled the all-time low record.

The rate from appendicitis (8.9) has not been lower since 1925, the year in which Alabama was admitted to the death registration area; that from bronchitis (2.1) and whooping cough (6.2) has been lower only once.

During the past decade, only once has the death rate from suicide (5.9) been lower and that from homicide (19.7) equalled the lowest figure reached in the same period.

The death rate from measles, although not as high as the rate recorded in 1934, was the second highest recorded in more than a decade.

New maximum death rates were established by cancer (59.4) and cerebral hemorrhage (73.1 per 100,000 population).

The rate from acute and chronic nephritis (82.1) has increased steadily during the past three years.

In 1935, as in the preceding year, heart disease was the leading cause of death. The provisional death rate (132.0 per 100,000 population) decreased. Pneumonia (all forms) became the second leading cause of death, the rate (85.3) being slightly higher than that in 1934. Nephritis, which has held second place for several years, took third place, the rate (82.1) remaining approximately the same as last year. Cerebral hemorrhage (73.1) remained fourth in order of importance, the rate having increased slightly. Tuberculosis, all forms, (63.4) which, in previous years,

has held a more prominent position in the list of important causes of death, took sixth place and was replaced by accidents and other violence (65.7) as the fifth leading cause. Cancer remained seventh in order of importance, the rate (59.4) having increased by a small amount.

During the first six months in 1935 an intensive birth registration campaign was carried on, through the joint assistance of the Federal Emergency Relief Administration, which furnished all clerical personnel, and the U. S. Bureau of the Census, which furnished a technical supervisor. It was very successful, as is indicated by the fact that some 2,500 delayed certificates of births occurring in 1934 were secured, most of which were the direct result of the campaign.

It was preceded by an intensive publicity campaign. For more than a month, every daily, weekly and monthly newspaper carried a story concerning the need for birth registration. Postal cards were then delivered to every home, by mail carriers, requesting that they be completed and returned if a baby had been born in that household during the twelve months preceding. The response was gratifying and the sample returned was large, compared with that obtained in similar campaigns in other states. Cards returned to the State Board of Health at Montgomery were checked against records of the Bureau of Vital Statistics to see whether the birth had been registered.

According to the results of the above check, birth registration in Alabama was found to be about 90 per cent complete. It should be remembered, however, that this figure is only the minimum required by the U. S. Bureau of the Census for entrance into the Birth Registration Area. In short, it indicates that the completeness of registration in 1934 was no better than it was in 1927, when Alabama was admitted to the Birth Registration Area. In certain counties completeness of registration was extremely deficient.

The depression has undoubtedly been responsible for much of the lack of completeness in birth registration. It is very strongly indicated by the fact that in general those counties most severely affected by the depression also show the greatest deficiency in registration. These same counties frequently failed to pay registrars of vital statistics the small sum for their services when due. In fact, more than one in ten counties failed to pay their registrars for services rendered in 1934 for a period of ten months or more after payment was due and, at the present writing (1936), registrars in eight counties are still unpaid.

This has seriously interfered with the completeness of registration. All too frequently, persons serving as registrar have done so simply to "help out," rather than for the financial remuneration involved. Commendable as the spirit of "helping out" is, it has not been possible to require of these persons the registration service we should and must have, if we are to secure the completeness of registration to which Alabama is entitled. Incidentally, even before the depression, certain counties have always been lax about the payment of registrars of vital statistics.

Not only must provision be made for more prompt and complete payment of our registrars,

but more adequate payment. The fee of twenty-five cents per certificate does not cover the cost, in many instances, of securing it. It is by no means uncommon to be told by a registrar, when requested to fulfill his duties as a registrar, that he cannot and will not perform such services at the rate of pay now fixed by law, and, if pressed to do so, he will resign.

In the 1935 session of the Legislature, a bill was introduced by the Bureau of Vital Statistics to make possible the prompt payment of fees to registrars when due. It was killed in committee. At the present writing a new bill has been introduced in the special session called in 1936, for the same purpose. Attention is called to the fact that of the Southern States, North Carolina, Georgia, and Texas are now paying fifty cents for each certificate, twice as much as the State of Alabama. Mississippi pays fifty cents for certificates filed in places of less than 2,500 population.

A bill was also introduced in the 1935 session of the Legislature, designed to require the registration of original marriage licenses and certificates with the Bureau of Vital Statistics at Montgomery. Before action could be obtained on this bill, the Legislature adjourned. In the special session of 1936 a new bill has been introduced for the same purpose.

It is important that the registration of marriage licenses and certificates at the central bureau be obtained. In most, if not in all, counties such records are not protected against fire hazards. They are seldom indexed in order that they may be easily referred to. Under the present system it is necessary to go to the files in many counties before locating a certificate of marriage, whereas, if they were registered in one place, they would be readily available.

Through the assistance of the ARA and the WPA, it has been possible to prepare a permanent index of births and deaths for the period 1920-1932. Some idea of the magnitude of this work may be had from the fact that approximately 1,500,000 lines of information have been copied. It has required the services of about thirty-two typists for one year.

The 1934 summary of vital statistics has been enlarged to provide a complete record of births and deaths as registered in 1934. Special emphasis has been continued upon the factor of residence. In order to make proper comparisons, corrections must be made for residence. This has been done in the 1934 summary of vital statistics.

In 1935, there were issued 2,455 certified copies of certificates. Although not quite as great in number as those issued in the preceding year, the demand for certified copies is expected to increase, owing to an increase in the demand from the Veterans' Bureau and as a result of social legislation. Birth records issued for employment purposes numbered 931, an increase of approximately 50 per cent over the 1934 figure. A very marked increase was recorded in the number of records issued, primarily for school purposes, which numbered in total 14,308; 47,000 birth registration notices were issued. The number of corrections totalled 1,871, chiefly consisting of sup-



plemental name corrections. A summary of the work done by the Division of Registration during the period 1932-1935 follows:

|  | 1932   | 1933   | 1934   | 1935   |
|--|--------|--------|--------|--------|
| Certified copies issued.....   | 3,747  | 2,308  | 2,525  | 3,507  |
| Birth records for employment purposes.....   | 947    | 1,763  | 645    | 931    |
| Copies of birth records, mainly for school purposes, etc., and other miscellaneous business..... | 7,029  | 7,527  | 10,154 | 14,308 |
| Birth registration notices sent to parents.....  | 55,719 | 49,500 | 29,500 | 47,000 |
| Corrections to records.....  | 4,880  | 5,307  | 2,517  | 1,871  |

The new combined certificate for the registration of stillbirths was introduced in 1935. It is believed that this form will be much more convenient to the physician.

The Vital Statistics Laws were revised and the December issue of The Journal records them as amended by the last session (1935) of the Legislature. Such a revision was especially indicated in view of the fact that many of the laws as recorded were not in keeping with public health practice which has been in effect for years.

## REGISTRATION AT THE SIXTY-NINTH CONSECUTIVE ANNUAL SESSION

Montgomery, April 21-23, 1936

### LIFE COUNSELLORS

Baker, J. N., Montgomery  
Betts, W. F., Evergreen  
Britt, W. S., Eufaula  
Brothers, T. J., Anniston  
Cameron, M. B., Eutaw  
Cunningham, W. M., Jasper  
Davie, M. S., Dothan  
Faulk, W. M., Tuscaloosa

Gordon, S. A., Marion  
Guice, C. L., Gadsden  
Heacock, J. D., Birmingham  
Hill, L. L., Montgomery  
Hill, R. S., Montgomery  
Howle, J. A., Hartselle  
James, A. D., Choctaw  
Jones, C. C., Birmingham

Lupton, F. A., Birmingham  
McLester, J. S., Birmingham  
Partlow, W. D., Tuscaloosa  
Ray, J. U., Woodstock  
Talley, D. F., Birmingham  
Thigpen, C. A., Montgomery  
Ward, H. S., Birmingham

### ACTIVE COUNSELLORS

Alison, J. F., Selma  
Alison, S. B., Minter  
Anderson, T. J., Greensboro  
Ashcraft, V. L., Reform  
Bailey, E. B., Demopolis  
Beard, R. B., Troy  
Bedsole, J. G., Jackson  
Cannon, D. L., Montgomery  
Carter, W. R., Repton  
Chandler, Joel, Columbiana  
Chenault, E. M., Decatur  
Chenault, F. L., Decatur  
Cowles, W. L., Shawmut  
Craddock, F. H., Sy'acauga  
Dabney, M. Y., Birmingham  
Dowling, J. D., Birmingham  
Eskew, M. H., Uniontown  
Garber, J. R., Birmingham  
Gragg, V. J., Clanton  
Granger, F. G., Ashford  
Greer, W. H., Sheff'eld  
Hagood, M. H., Brewton  
Hatchett, W. C., Huntsville  
Hayes, C. P., Elba  
Hayes, J. P., Clanton  
Hill, R. L., Winfield  
Hodges, Rayford, Scottsboro

Hough, J. S., Montgomery  
Hubbard, T. B., Montgomery  
James, N. G., Hayneville  
Jordan, S. E., Highland Home  
Kirkpatrick, S., Selma  
Leach, Sydney, Tuscaloosa  
Ledbetter, S. L., Jr., Birmingham  
Lewis, W. A., Enterprise  
Lightfoot, P. M., Shorter  
Long, Clarence, Hurtsboro  
Lull, Cabot, Birmingham  
Martin, John A., Montgomery  
Martin, J. C., Cul'man  
Mason, E. M., Birmingham  
Mason, J. M., Birmingham  
Mayer, K. A., Lower Peach Tree  
McAdory, E. D., Cullman  
McCall, D. T., Mobile  
Newman, S. H., Dadeville  
Noland, Lloyd, Fairfield  
Nolen, J. A. M., Alexander City  
Parker, L. D., Andalusia  
Perdue, J. D., Mobile  
Price, A. B., Gordo  
Ralls, A. W., Gadsden  
Riser, W. H., LaFayette

Rountree, W. S., Birmingham  
Rucker, E. W., Jr., Birmingham  
Salter, W. M., Anniston  
Scarborough, B. C., Albertville  
Scott, W. F., Birmingham  
Searcy, H. B., Tuscaloosa  
Shaddix, M. L., Phenix City  
Smith, G. R., Ozark  
Smith, R. A., Brewton  
Speir, P. V., Greenville  
Tankersley, James, Prattville  
Taylor, W. R., Town Creek  
Thacker, V. J., Dothan  
Thomas, E. M., Prattville  
Tillman, J. S., Clio  
Walker, A. A., Birmingham  
Walls, J. J., Alexander City  
Waldrop, R. W., Bessemer  
Walsh, G. F., Fairfie'd  
Welch, S. H., Birmingham  
Weldon, J. M., Mobile  
White, A. L., Thomasville  
Wilkinson, Fred, Montgomery  
Williams, M. J., Oxford  
Wood, W. D., Camp Hill  
Wright, D. H., Berry

### DELEGATES

Autauga: R. M. Golson, Prattville; G. M. Taylor, Prattville.  
Baldwin: S. A. Durick, Bay Minette.  
Barbour: E. M. Moore, Clayton; T. R. Simpson, Eufaula.  
Bibb: S. C. Meigs, Centerville; T. E. Schoolar, Centerville.

Blount: E. T. Brown, Cleveland; E. E. Pate, Blountsville.  
Bullock: W. H. McCaslan, Union Springs; J. W. Thomason, Midway.  
Calhoun: J. F. Posey, Anniston.  
Chambers: W. L. Marshall, Langdale; J. L. Weldon, Lanett.

Chilton: A. E. Ballard, Jem'son.  
Choctaw: W. J. Barber, Butler; R. D. Shaw, Gilbertown.  
Clarke: G. C. McCrary, Jackson.  
Coffee: B. J. Massey, New Brockton.  
Colbert: W. E. McGrath, Sheff'eld; W. R. Trapp, Tuscum-bia.

- Conecuh: U. L. Jones, Brooklyn; E. L. Kelly, Repton.  
Coosa: J. H. Foster, Weogufka.  
Covington: C. D. McLeod, Andalusia.  
Crenshaw: W. T. Bayles, Luverne; M. L. Morgan, Brantley.  
Cullman: J. G. Daves, Cullman; T. H. Sudduth, Hanceville.  
Dale: A. D. Matthews, Ozark; T. D. McKnight, Ariton.  
Dallas: P. Y. Donald, Selma.  
DeKalb: J. E. Buzbee, Fort Payne.  
Elmore: W. M. Gamble, Wetumpka; J. F. Sewell, Wetumpka.  
Escambia: M. J. Abrams, Brewton; D. S. Hagood, Brewton.  
Etowah: E. H. Cross, Jr., Gadsden; J. T. Sheppard, Gadsden.  
Fayette: A. L. Blakeney, Newtonville; J. A. Branyon, Fayette.  
Franklin: Price Clayton, Russellville; Sam Snoddy, Russellville.  
Geneva: I. L. Johnston, Samson.  
Hale: C. A. Poellnitz, Greensboro.  
Henry: T. J. Floyd, Abbeville; T. B. Woods, Headland.  
Houston: J. T. Ellis, Dothan.  
Jefferson: K. W. Constantine, Birmingham; C. H. Ford, Birmingham; E. G. Givhan, Jr., Birmingham; G. S. Graham, Birmingham; J. L. Hillhouse, Birmingham; J. D. Sherrill, Birmingham; F. C. Wilson, Birmingham.  
Lamar: J. M. Roberts, Vernon.  
Lauderdale: W. J. Robbins, Florence.  
Lawrence: H. C. McCullough, Town Creek.  
Lee: J. G. Palmer, Opelika; J. T. Oliver, Auburn.  
Limestone: W. A. Minsch, Athens.  
Lowndes: R. B. Hagood, Lowndesboro; W. E. Lee, Ft. Deposit.  
Macon: Murray Smith, Tuskegee.  
Madison: Moody Walker, Huntsville.  
Marengo: E. T. Norman, Linden.  
Marshall: J. W. Boggess, Jr., Guntersville.  
Mobile: F. T. Boudreau, Mobile; O. L. Chason, Mobile; A. N. T. Roach, Mobile.  
Monroe: W. A. Stallworth, Frisco City.  
Montgomery: H. S. Bartlett, Montgomery; L. L. Hill, Jr., Montgomery; Robert Parker, Montgomery; Felix Tankersley, Montgomery.  
Morgan: J. W. Hughes, Decatur; A. M. Roan, Decatur.  
Perry: B. B. Pugh, Uniontown.  
Picksens: J. J. Croley, Carrollton.  
Randolph: M. R. McWhorter, Woodland.  
Shelby: Willena Peck, Montevallo.  
St. Clair: J. F. Jenkins, Acmar; Frank Stitt, Pell City.  
Sumter: R. C. Hill, York; S. J. Williams, Livingston.  
Talladega: C. W. C. Moore, Talladega; R. C. Stewart, Sylacauga.  
Tallapoosa: C. C. Fargason, Dadeville; R. A. Foshee, Alexander City.  
Tuscaloosa: J. H. Goode, Tuscaloosa; P. B. Mayfield, Tuscaloosa.  
Walker: M. E. Smith, America; A. M. Waldrop, Jasper.  
Washington: W. E. Kimbrough, Chatom; I. C. Sumner, Chatom.

## MEMBERS

## A

Abernethy, W. H., Troy  
Abernethy, W. L., Flomaton  
Akin, J. M., Birmingham  
Alexander, W. W., Florence  
Allen, W. E., Sweet Water  
Allgood, H. W., Fairfield  
Anderson, B. F., Sellers  
Austin, B. F., Montgomery

## B

Bancroft, J. D., Birmingham  
Banks, J. T., Dadeville  
Barker, H. E., Union Springs  
Barnes, J. M., Montgomery  
Berry, R. A., Birmingham  
Berry, W. T., Birmingham  
Bird, B. C., Montgomery  
Board, O. P., Birmingham  
Booth, B. W., Shorter  
Boswell, F. P., Montgomery  
Bowman, J. L., Montgomery  
Boyd, F. H., Opelika  
Boykin, S. S., Oak Hill  
Bragg, E. G., Elba  
Branch, J. L., Montgomery  
Brannon, R. M., Birmingham  
Britton, J. W., Anniston

Broach, N. L., Pine Level  
Brownlee, L. G., Birmingham  
Bruce, B. S., Opelika  
Brunson, E. T., Samson  
Burkett, W. T., Dothan  
Burson, E. G., Furman

## C

Callaway, R. R., Birmingham  
Cameron, J. E., Alexander City  
Cameron, T. C., Faunsdale  
Cannon, E. R., Vredenburgh  
Carraway, C. N., Birmingham  
Cater, J. T., Montgomery  
Chapman, J. A., Alexander City  
Chapman, J. A. R., Goodwater  
Chisolm, J. S., Selma  
Clements, F. H., Birmingham  
Clyde, W. A., Fairfield  
Cobbs, B. W., Montgomery  
Coggin, F. R. B., Waverly  
Co'e, L. G., Wetumpka  
Coleman, W. E., Roanoke  
Colquitt, C. J., Bessemer  
Collier, J. P., Tuscaloosa  
Conwell, H. E., Birmingham  
Corrington, D. D., Tallassee  
Cowden, A. M., Mobile  
Cowles, A. D., Ramer

Cowles, T. D., Troy  
Coyle, D. J., Birmingham  
Crawford, J. H., Columbiana  
Crawford, J. M., Arab  
Crawford, R. D., Dothan  
Crowder, J. W., Bessemer  
Cummins, M. L., Ashford  
Curtis, R. C., Calera

## D

Davidson, M. T., Birmingham  
Day, Edward, Orrville  
Dean, J. D., Birmingham  
Deaver, W. T., Birmingham  
Dennis, G. A., Montgomery  
Dennis, J. W., Montgomery  
Denson, F. H., Bessemer  
DeRamus, W. H., Selma  
Dismukes, L. L., Geneva  
Dixon, R. E., Alberta  
Donald, J. M., Birmingham  
Donald, T. C., Birmingham  
Donovan, H. T., Elba  
Douglas, G. F., Birmingham

## E

Edge, O. N., Troy  
Edwards, J. E. H., Yolande  
Elliott, B. F., Moundville



F

Fargason, J. F., East Tallassee  
Farmer, H. R., Fairfield  
Ferry, J. A., Birmingham  
Feulner, C. D., Selma  
Fisher, C. J., Moulton  
Foster, J. O., Luverne  
Frank, H. W., Gadsden  
Franklin, C. M., Union Springs  
Franklin, H. G., Thorsby

G

Garrett, J. D., Midland City  
Garrison, J. E., Birmingham  
Gay, A. J., Roanoke  
Gill, D. G., Montgomery  
Glazer, Harry, Montgomery  
Godbold, P. E., Pine Hill  
Goldsmith, E. F., Brewton  
Graves, A. W., Gadsden  
Green, A. H., Birmingham  
Green, R. C., Birmingham  
Grote, C. A., Huntsville  
Gwin, P. E., Sumiton

H

Hanby, E. K., Attalla  
Hannon, W. C., Mobile  
Harmon, J. S., Elmore  
Harper, R. E., Tuscumbia  
Harris, H. P., Montgomery  
Heiter, W. L., Mobile  
Hill, J. F., Montgomery  
Hill, J. H., Talladega  
Hilson, Lewis, Dothan  
Holding, B. F., Montgomery  
Holey, A. F., Brewton  
Holley, J. F., Florala  
Hollis, L. W., Mobile  
Hubbard, W. D., Florence  
Hudson, P. D., Opelika  
Huey, T. F., Anniston  
Hunt, M. C., Fairfax  
Hurst, J. C., Opp

I

Isbell, E. A., Gadsden

J

Jackson, B. F., Montgomery  
Jackson, H. L., Birmingham  
Jenkins, L. A., Birmingham  
Johnson, C. E., LaFayette  
Johnson, W. S., Notasulga  
Johnson, Oscar, Pike Road  
Johnston, J. C., Chapman  
Johnston, J. D., Brundidge  
Jones, W. C., Birmingham  
Jones, W. N., Birmingham  
Jordan, Frank, Huntsville  
Jordan, J. S., Birmingham  
Jordan, O. L., Ho't

K

Kay, F. A., Tuscaloosa  
Kendrick, J. E., Greenville  
Kennedy, Hughes, Jr., B'ham  
Kesmodel, K. F., Birmingham  
Killingsworth, N. W., Brundidge  
Kimbrough, C. E., Linden  
Kimbrough, R. M., Birmingham  
Kimmey, J. M., Clanton  
King, C. O., Birmingham  
Kinkead, Kyle, Birmingham  
Kirkpatrick, M. B., Montgomery  
Kyzar, J. H., Andalusia

L

Laslie, C. G., Montgomery  
Lawrence, Toombs, Tuscaloosa  
Leatherwood, E. F., Hayneville  
Lee, A. B., Shawmut  
Lewis, T. K., Birmingham  
Leyden, H. A., Anniston  
Linn, J. E., Birmingham  
Little, E. G., Blossburg  
Little, J. H., Mobile  
Littlejohn, W. S., Birmingham  
Littlepage, G. F., Sheffield  
Long, D. J., Montgomery  
Long, J. R., Marion  
Majure, E. O., Wetumpka  
Martin, F. J., Montgomery  
Martin, H. F., Birmingham  
Martin, J. H., Selma  
Maumene, A. E., Birmingham  
McConnico, F. H., Montgomery  
McGehee, W. W., Montgomery  
McIntosh, E. L., Camden  
McLain, A. D., Salem  
McLean, C. C., Birmingham  
McRee, H. C., Opelika  
Meeker, W. R., Mobile  
Mehaffey, J. W., Birmingham  
Mertins, P. S., Montgomery  
Mertins, P. S., Jr., Montgomery  
Mil'igan, R. L., Montgomery  
Minot, W. D., Monroeville  
Monsky, D. B., Montgomery  
Montgomery, A. H., Montgomery  
Montgomery, J. Ethel, B'ham  
Moon, E. P., Wetumpka  
Moore, C. H., Birmingham  
Moore, E. G., Tallassee  
Moore, L. H., Orrville  
Morgan, Ralph, Birmingham  
Moseley, S. O., Selma  
Moss, P. B., Selma  
Murphree, C. L., Gadsden  
Murphree, L. R., Decatur

N

Newton, G. E., Scottsboro  
Nickerson, Paul, Sylacauga  
Nolan, M. M., Birmingham

O

O'Connell, Edward, Birmingham  
Orr, W. L., Ozark

P

Parnell, C. N., Maplesville  
Parsons, W. C., Birmingham  
Patton, T. H., Tuscaloosa  
Piper, B. L., Roanoke  
Pope, E. C., Birmingham  
Prescott, W. E., Sr., Birmingham  
Prescott, W. E., Jr., Birmingham  
Putnam, G. H., Slocomb

R

Reaves, J. U., Mobile  
Reynolds, F. D., Montgomery  
Reynolds, Gibson, Montgomery  
Reynolds, G. C., Brundidge  
Reynolds, R. D., Ozark  
Reid, James, Clayton  
Rice, C. H., Montgomery  
Riggs, S. W., Selma  
Rivers, T. D., Montgomery  
Roberts, S. S., Florence  
Robertson, B. O., Birmingham  
Robertson, J. P., Birmingham  
Rountree, W. B., Birmingham

S

Salter, P. P., Eufaula  
Sellers, H. G., Birmingham  
Sellers, W. A., Montgomery  
Shackelford, Frank, Hope Hull  
Shanks, R. G., Autaugaville  
Shannon, P. W., Birmingham  
Shepherd, R. H., Townley  
Simon, H. E., Birmingham  
Simpson, S. P., Alabama City  
Skinner, Marcus, Selma  
Smith, J. C., Birmingham  
Smith, J. L., Montgomery  
Smith, W. H. Y., Montgomery  
Snelling, D. B., Montgomery  
Sorrell, L. E., Birmingham  
Speir, H. P., Greenville  
Stevenson, F. C., Montgomery  
Stiles, Porter, Birmingham  
Stallworth, C. J., Thomaston  
Stanley, W. A., Enterprise  
Stough, W. V., Montgomery  
Stovall, H. C., Pinckard  
Street, T. H., Alexander City  
Strock, C. S., Verbena  
Stubbins, S. G., Birmingham  
Suggs, S. D., Montgomery

T

Terhune, S. R., Birmingham  
Thomas, A. E., Montgomery  
Thomas, B. F., Auburn  
Thompson, P. M., Abbeville

Thorington, Chilton, Montgomery  
Trammell, E. L., Prattville

## U

Underwood, S. S., Birmingham  
Ussery, G. C., Roanoke

## W

Walker, L. M., Jasper  
Wall, Conrad, Forest Home

Wallace, A. D., Plantersville  
Washam, J. M., Talladega  
Watkins, J. H., Montgomery  
Weil, C. K., Montgomery  
Westcott, W. B., Montgomery  
Whitaker, J. E., Huntsville  
Whitehead, F. F., Blountsville  
Wilkerson, W. W., Montgomery  
Wilkinson, H. B., Montgomery  
Wilkinson, J. G., Cottonwood  
Williams, J. R., Selma

Wilson, J. D., Birmingham  
Wilson, J. M., Mobile  
Windham, L. A., Luverne  
Wood, F. R., Heflin  
Wood, N. N., Birmingham  
Wright, R. D., Leighton

## Y

Yarbrough, C. S., Auburn  
Yarbrough, J. F., Montgomery

## VISITORS

Dr. W. W. Bauer, Chicago, Ill.  
Dr. J. M. Cary, Opelika  
Dr. C. L. Carter, Brundidge  
Dr. Carl Henry Davis, Milwaukee, Wis.  
Dr. D. H. Finlay, Blountstown, Fla.  
Dr. N. L. Gachet, Century, Fla.  
Dr. Francis E. LeJeune, New Orleans, La.  
Dr. John H. Musser, New Orleans, La.  
Dr. Lucian Newman, Dadeville.  
Dr. Neal Owens, New Orleans, La.  
Dr. Thomas Parran, Washington, D. C.  
Dr. E. W. Peterson, New York City  
Dr. F. W. Rankin, Lexington, Ky.  
Dr. T. B. Robertson, Birmingham.  
Dr. F. W. Samuels, Reno, Nev.  
Dr. J. G. Standifer, Blakely, Ga.  
Dr. Rufus Thames, Milton, Fla.  
Dr. J. S. Turberville, Century, Fla.

Mrs. W. T. Bayles, Luverne  
Mrs. E. T. Brunson, Samson  
Mrs. J. D. Dowling, Birmingham  
Mrs. C. L. Guice, Gadsden  
Mrs. G. H. Putnam, Slocumb  
Mrs. H. G. Sellers, Birmingham  
Mrs. G. R. Smith, Ozark  
Mrs. F. C. Stevenson, Montgomery  
Mrs. Charles Thigpen, Montgomery  
Mrs. Charles Thigpen, Jr., Montgomery  
Mrs. A. D. Wallace, Plantersville  
Mrs. W. D. Wood, Camp Hill  
Mrs. E. A. Almgren, Birmingham  
Frank Arrington, Atlanta, Ga.  
J. G. Box, Birmingham  
Walter S. Britt, Montgomery  
Frank Bruce, University  
Dr. C. F. Chandler, Montgomery  
E. L. Cornman, Marietta, Pa.  
W. A. Cotter, Ozark  
Walter D. Davis, Montgomery  
H. R. Dawling, Washington, D. C.  
L. L. Dismukes, Jr., Geneva  
Mary Dismukes, Geneva  
Harold Duke, Samson  
Mrs. Irene J. Duke, Samson

J. J. Eberhart, New Hope, Ala.  
W. B. Fisk, Montgomery  
G. S. Frazer, Montgomery  
Fred W. Genz, New Haven, Conn.  
J. S. Gibson, Atlanta, Ga.  
Grover C. Hall, Montgomery  
J. V. Henderson, Birmingham  
G. E. Herring, Woodstock  
H. D. Higgison, Montgomery  
C. A. Koepke, New Orleans, La.  
Mrs. J. J. Mayfield, Tuscaloosa  
M. L. McNutt, Birmingham  
Spratt Meredith, Birmingham  
T. F. Moore, Birmingham  
Ralph Osborn, Birmingham  
M. S. Peake, Montgomery  
L. V. Phelps, Montgomery  
R. P. Rast, Montgomery  
R. C. Reynolds, Ozark  
R. D. Sehlegel, Minneapolis, Minn.  
Geo. F. Shackelford, Montgomery  
J. S. Thomason, Birmingham  
S. P. Vandiviere, Greenville  
Eunice Ward, Montgomery  
Jesse F. Yeates, Birmingham

## REVISION OF THE ROLLS

The next order of business being the revision of the rolls of the Association, the Secretary was directed by President Thigpen to proceed without interruption in the absence of objection. As a preface to the revision of the Roll of County Societies, the Secretary said:

"County Medical Societies, to comply with the Constitution, must meet certain obligations. First, an annual report, on forms furnished by the Association, must be filed with the Secretary; second, each society is expected to be represented at the annual meeting by at least one delegate; third, fees must be paid to the Treasurer of the Association for each delegate to which the society is entitled;

and, fourth, dues are to be remitted to the Treasurer for each member."

With this foreword, the revision proceeded.

1. *Revision of the Roll of County Societies:*

(a) County societies which have fulfilled all their constitutional obligations: Autauga, Baldwin, Barbour, Bibb, Blount, Bullock, Calhoun, Chambers, Chilton, Choctaw, Clarke, Coffee, Conecuh, Covington, Crenshaw, Cullman, Dale, Dallas, DeKalb, Elmore, Escambia, Etowah, Fayette, Franklin, Geneva, Hale, Henry, Houston, Jefferson, Lamar, Lauderdale, Lawrence, Lee, LIMESTONE, Lowndes, Macon, Madison, Marengo, Marshall, Mobile, Monroe, Montgomery, Morgan, Perry, Pickens, Randolph, Shelby, Sumter, Talladega, Tallapoosa, Tuscaloosa, Walker, Washington—Total 53.

No objection being made as to the correctness of this report, the President di-



rected that these societies be passed as clear on the books.

(b) County societies partially delinquent: Butler, Jackson, Marion, Pike, Russell, Wilcox and Winston not represented by a delegate; Cherokee, not represented and dues for only one delegate; Cleburne and Greene, not represented and no dues for delegates to which entitled; Colbert did not submit annual report; Coosa and St. Clair did not remit dues for their delegates—Total 13.

No objection being offered as to the correctness of this report, the President directed that these societies be passed, with the understanding that the Secretary and Treasurer make an effort to collect outstanding dues.

(c) County societies totally delinquent: Clay.

The President directed that this society be referred to the Board of Censors for investigation.

Thereupon the Secretary said: "In revising the Roll of the College of Counsellors, five lists are prepared, designated respectively: (1) The schedule of counsellors clear on the books in regard to attendance and dues; (2) The schedule of delinquent counsellors—counsellors delinquent in attendance or dues, or against whom charges may be pending; (3) The schedule of miscellaneous counsellors—counsellors who have died since the last annual meeting, or have offered their resignation, or have moved out of the State, or out of their respective congressional districts; (4) the schedule of active counsellors of twenty years' standing, and (5) the schedule of counsellors-elect who have qualified as provided in the Constitution."

With such preface, the revision was continued.

## 2. Revision of the Roll of Counsellors:

(a) Counsellors clear on the books: Abernethy, Acker, Alison, J. F., and S. B., Anderson, Ashcraft, Bailey, Beard, Bedsole, Burdeshaw, Caldwell, Cannon, Carter, Chandler, Chenault, F. L.; Craddock, Cryer, Dabney, Dowling, Dupree, Eskew, Garber, Gilder, Gragg, Granger, Greer, Gresham, W. A.; Hagood, Hatchett, Hayes, C. P., and J. P., Hill, R. L.; Hollis, Howell, Hubbard, Jackson, James, Jordan, Kirkpatrick, Leach, Lester, Lewis, Lightfoot, Long, Lull, Martin, J. A., and J. C.; Mason, E. M., and J. M.; Mayer, McAdory, McCall, Moore, Moxley, Newman, Noland, Nolen, Oswalt, Parker, Perdue, Price, Ralls, Redden, Rountree, Rucker, Salter, Scott, Searcy, Shamblin, Shropshire, Sledge, Smith, G. R., and R. A.; Speir, Tankersley, Taylor, Thomas, Wal-

drop, Walker, Walls, Walsh, Welch, White, Wilkerson, Williams, Wood, Wright.

In the absence of objection, the President ordered the names of these counsellors, reported as clear on the books, passed.

(b) Delinquent Counsellors: None.

(c) Miscellaneous Counsellors:

- (1) Life Counsellors who have died: Dr. William Henry Oates, Dr. William Thomas Pride, Dr. Benjamin Britt Simms, Dr. James Perry Turner.
- (2) Active Counsellors who have died: Dr. George W. Williamson.
- (3) Active Counsellors who have moved: Dr. W. L. Cowles, Dr. J. S. Hough, Dr. M. L. Shaddix.
- (4) Active Counsellors who have resigned: None.
- (5) Active Counsellors of twenty years' standing: None.
- (6) Counsellors-Elect who have properly qualified: Drs. E. M. Chenault, Rayford Hodges, S. L. Ledbetter, Jr., W. H. Riser, B. C. Scarbrough, V. J. Thacker, J. S. Tillman, J. M. Weldon.

The President directed that the names of deceased counsellors be transferred to the Book of the Dead; that vacancies be declared in those congressional districts from which Drs. Cowles, Hough and Shaddix had moved; and that the names of the counsellors-elect be added to the Roll of Active Counsellors.

## 3. Revision of the Roll of Correspondents:

No revision was in order.

## 4. Revision of the Roll of Officers:

Dr. Lloyd Noland, Fairfield, was elected President; Dr. M. E. Smith, America, was elected Vice-President of the Northwestern Division. Drs. M. Y. Dabney and K. A. Mayer were elected Censors for five years, succeeding themselves; Dr. W. D. Partlow was elected a Censor for one year to fill the unexpired term of Dr. George Searcy, deceased; Dr. W. F. Scott was elected a Censor for three years to fill the unexpired term of Dr. Lloyd Noland, who was chosen President of the Association.

Committees constitutionally provided to nominate counsellors brought in the following nominations: From the First District—Drs. J. G. Bedsole, G. G. Oswalt, E. S. Sledge; Third—Dr. E. T. Brunson; Fifth—Dr. T. H. Appleton; Sixth—Drs. R. C. Hill, J. V. Howell; Eighth—Dr. W. C. Hatchett; Ninth—Drs. J. D. Dowling, Geo. S. Graham, Lloyd Noland, E. W. Rucker, Walter Scott, R. W. Waldrop.

The ballot of the Association was cast for these nominees by the Secretary.

Miscellaneous Business

Birmingham was chosen as the 1937 meeting place.

Resolution was adopted conveying the Association's appreciation of courtesies shown it during the session.

The President for the ensuing year and other officers were presented, whereupon the Association was declared adjourned.

SUMMARY OF ANNUAL ATTENDANCE

| Year | Life Counsellors | Active Counsellors | Delegates | Members | Visitors | Total | Place      |
|------|------------------|--------------------|-----------|---------|----------|-------|------------|
| 1910 | 10               | 44                 | 83        | 157     | 51       | 344   | Mobile     |
| 1911 | 14               | 53                 | 66        | 139     | 19       | 291   | Montgomery |
| 1912 | 16               | 63                 | 92        | 348     | 40       | 559   | Birmingham |
| 1913 | 7                | 49                 | 83        | 124     | 17       | 280   | Mobile     |
| 1914 | 16               | 67                 | 85        | 226     | 20       | 414   | Montgomery |
| 1915 | 32               | 74                 | 108       | 429     | 49       | 692   | Birmingham |
| 1916 | 19               | 66                 | 92        | 106     | 41       | 306   | Mobile     |
| 1917 | 18               | 64                 | 96        | 199     | 32       | 409   | Montgomery |
| 1918 | 27               | 63                 | 80        | 257     | 44       | 471   | Birmingham |
| 1919 | 22               | 43                 | 87        | 94      | 102      | 348   | Mobile     |
| 1920 | 16               | 61                 | 59        | 85      | 51       | 272   | Anniston   |
| 1921 | 26               | 65                 | 73        | 183     | 58       | 405   | Montgomery |
| 1922 | 26               | 72                 | 76        | 314     | 68       | 556   | Birmingham |
| 1923 | 14               | 48                 | 66        | 106     | 50       | 284   | Mobile     |
| 1924 | 29               | 70                 | 84        | 230     | 79       | 492   | Montgomery |
| 1925 | 27               | 78                 | 97        | 328     | 113      | 643   | Birmingham |
| 1926 | 33               | 74                 | 105       | 194     | 131      | 537   | Mobile     |
| 1927 | 36               | 85                 | 104       | 252     | 87       | 564   | Montgomery |
| 1928 | 33               | 77                 | 108       | 507     | 106      | 831   | Birmingham |
| 1929 | 19               | 60                 | 102       | 176     | 109      | 466   | Mobile     |
| 1930 | 32               | 83                 | 106       | 286     | 102      | 609   | Montgomery |
| 1931 | 26               | 80                 | 116       | 410     | 158      | 790   | Birmingham |
| 1932 | 19               | 60                 | 101       | 158     | 133      | 471   | Mobile     |
| 1933 | 21               | 74                 | 103       | 264     | 85       | 541   | Montgomery |
| 1934 | 26               | 75                 | 97        | 404     | 53       | 655   | Birmingham |
| 1935 | 15               | 59                 | 91        | 180     | 83       | 428   | Mobile     |
| 1936 | 23               | 79                 | 95        | 265     | 68       | 530   | Montgomery |

THE ROLL OF COUNSELLORS

REVISION OF 1936

LIFE COUNSELLORS

| Name and Address                      | Date of Election |
|---------------------------------------|------------------|
| Andrews, Glenn, Montgomery (2)        | 1893             |
| Baker, J. N., Montgomery (2)          | 1905             |
| Betts, William Frank, Evergreen (2)   | 1904             |
| Bondurant, Eugene DuBose, Mobile (1)  | 1894             |
| Britt, W. S., Eufaula (3)             | 1905             |
| Brothers, Thomas J., Anniston (4)     | 1914             |
| Cameron, Matthew Bunyan, Eutaw (6)    | 1893             |
| Crutcher, John Sims, Athens (8)       | 1915             |
| Cunningham, William Moody, Jasper (7) | 1912             |

|  |      |
|--|------|
| Davie, Mercer Stillwell, Dothan (3)        | 1904 |
| Faulk, William M., Tuscaloosa (6)          | 1913 |
| Givhan, Edgar Gilmore, Montevallo (6)      | 1903 |
| Gordon, Samuel A., Marion (6)              | 1913 |
| Gresham, George L., Andalusia (2)          | 1913 |
| Guice, Charles Lee, Gadsden (5)            | 1899 |
| Harper, Wm Wade, Selma (4)                 | 1902 |
| Harris, Seale, Birmingham (9)              | 1903 |
| Harrison, William Groce, Birmingham (9)    | 1896 |
| Heacock, Jos. D., Birmingham (9)           | 1912 |
| Heflin, Howell T., Birmingham (9)          | 1914 |
| Heflin, Wyatt, Birmingham (9)              | 1893 |
| Hendrick, Walter Branham, Hurtsboro (3)    | 1915 |
| Hill, Luther Leonidas, Montgomery (2)      | 1888 |
| Hill, Robert Somerville, Montgomery (2)    | 1898 |
| Howle, James Augustus, Hartselle (8)       | 1895 |
| James, Ashley D., Choctaw (1)              | 1915 |
| Jones, Capers Capehart, East Lake (9)      | 1881 |
| Lupton, Frank A., Birmingham (9)           | 1913 |
| McCain, William Jasper, Livingston (6)     | 1898 |
| McElrath, William Sparke, Cedar Bluff (5)  | 1908 |
| McLeod, John Calvin, Bay Minette (2)       | 1911 |
| McLester, James Somerville, Birmingham (9) | 1913 |
| Mohr, Chas. A., Mobile (1)                 | 1909 |
| Morris, William E., Georgiana (2)          | 1913 |
| Partlow, William Dempsey, Tuscaloosa (6)   | 1909 |
| Pettey, Frank Paul, Decatur (8)            | 1909 |
| Prince, Edward Mortimer, Birmingham (9)    | 1909 |
| Ray, Jacob Ussery, Woodstock (6)           | 1906 |
| Sankey, Howard J., Nauvoo (7)              | 1914 |
| Talley, Dyer Findley, Birmingham (9)       | 1902 |
| Thigpen, Charles Alston, Montgomery (2)    | 1900 |
| Ward, Henry Silas, Birmingham (9)          | 1915 |
| Wilkinson, David Leonidas, Birmingham (9)  | 1902 |
| Total 43                                   |      |

ACTIVE COUNSELLORS

Those marked with a † are serving last terms of six years.  
Those marked with an asterisk (\*) are serving second terms of seven years.  
Those without a symbol are serving first terms of seven years.  
The numeral is the number of the congressional district.

|  | Date of Election | Expiration |
|--|------------------|------------|
| Abernethy, Floyd L., Foley (2)           | 1933             | to 1940    |
| Acker, Paul Jerome Morris, Mobile (1)    | *1930            | to 1937    |
| Alison, James F., Selma (4)              | 1934             | to 1941    |
| Alison, Samuel Blakemore, Minter (4)     | †1933            | to 1939    |
| Anderson, Thos. J., Greensboro (6)       | 1933             | to 1940    |
| Ashcraft, Virgil Lee, Reform (7)         | †1933            | to 1939    |
| Bailey, E. B., Demopolis (1)             | *1935            | to 1942    |
| Beard, Robert Briggs, Troy (2)           | 1932             | to 1939    |
| Bedsale, James Goodman, Jackson (1)      | †1936            | to 1942    |
| Burdshaw, Shelby L., Headland (3)        | †1935            | to 1941    |
| Caldwell, Edwin Valdivia, Huntsville (8) | †1932            | to 1938    |
| Cannon, Douglas L., Montgomery (2)       | *1935            | to 1942    |
| Carter, William R., Repton (2)           | 1934             | to 1941    |
| Chandler, Joel C., Columbiana (6)        | *1930            | to 1937    |
| Chenault, Erskine M., Decatur (8)        | 1935             | to 1942    |
| Chenault, Frank L., Decatur (8)          | 1917             |            |
| Craddock, French H., Sylacauga (4)       | 1932             | to 1939    |
| Cryer, George A., Anniston (4)           | *1932            | to 1939    |
| Dabney, Marye Y., Birmingham (9)         | *1930            | to 1937    |
| Dowling, Judson Davis, Birmingham (9)    | †1936            | to 1942    |
| Dupree, Marion W., Athens (8)            | *1930            | to 1937    |
| Eskew, M. H., Uniontown (6)              | 1934             | to 1941    |
| Garber, James R., Birmingham (9)         | 1932             | to 1939    |
| Gilder, George S., Carbon Hill (7)       | 1934             | to 1941    |
| Gragg, Vincent Jones, Clanton (6)        | †1935            | to 1941    |



ACTIVE COUNSELLORS—Continued

|   | Date of<br>Elec- Expi-<br>tion ration |
|---|---------------------------------------|
| Granger, F. G., Ashford (3).....                  | *1935 to 1942                         |
| Greer, William H., Sheffield (8).....             | †1934 to 1940                         |
| Gresham, Walter A., Russellville (7).....         | 1933 to 1940                          |
| Hagood, M. H., Brewton (2).....                   | *1931 to 1938                         |
| Hatchett, Wm. C., Huntsville (8).....             | *1936 to 1943                         |
| Hayes, Charles Philips, Elba (3).....             | †1934 to 1940                         |
| Hayes, Julius Poe, Clanton (6).....               | †1934 to 1940                         |
| Hill, Robert L., Winfield (7).....                | *1931 to 1938                         |
| Hodges, Rayford, Scottsboro (8).....              | 1935 to 1942                          |
| Hollis, Jonathan Shelton, Cevin (7).....          | *1930 to 1937                         |
| Howell, William Edward, Haleyville (7).....       | †1932 to 1938                         |
| Hubbard, T. Brannon, Montgomery (2).....          | *1932 to 1938                         |
| Jackson, Alva A., Florence (8).....               | †1932 to 1938                         |
| James, Norman Gilchrist, Hayneville (2).....      | †1935 to 1941                         |
| Jordan, Samuel E., Highland Home (2).....         | 1933 to 1940                          |
| Kirkpatrick, Samuel, Selma (4).....               | 1933 to 1940                          |
| Leach, Sydney, Tuscaloosa (6).....                | †1934 to 1940                         |
| Ledbetter, Samuel L., Jr., Birmingham (9).....    | 1935 to 1942                          |
| Lester, Belford S., Birmingham (9).....           | *1930 to 1937                         |
| Lewis, Walter A., Enterprise (3).....             | 1933 to 1940                          |
| Lightfoot, Phillip Malcolm, Shorter (3).....      | †1932 to 1938                         |
| Long, Clarence, Hurtsboro (3).....                | †1934 to 1940                         |
| Lull, Cabot, Birmingham (9).....                  | †1933 to 1939                         |
| Martin, James Cordie, Cullman (7).....            | 1917                                  |
| Martin, John A., Montgomery (2).....              | 1933 to 1940                          |
| Mason, E. M., Birmingham (9).....                 | *1931 to 1938                         |
| Mason, James Monroe, Birmingham (9).....          | †1932 to 1938                         |
| Mayer, Kossuth Aaron, Lower Peach Tree (1).....   | †1933 to 1939                         |
| McAdory, Edward Dud'ey, Cullman (7).....          | †1934 to 1940                         |
| McCall, Daniel T., Mobile (1).....                | *1930 to 1937                         |
| Moore, David S., Jr., Birmingham (9).....         | 1932 to 1939                          |
| Moxley, Joseph Benjamin, Brantley (2).....        | †1935 to 1941                         |
| Newman, Samuel Harris, Dadeville (5).....         | *1932 to 1939                         |
| Noland, Lloyd, Fairfield (9).....                 | *1936 to 1943                         |
| Nolen, John A. M., Alexander City (5).....        | †1934 to 1940                         |
| Oswalt, G. G., Mobile (1).....                    | *1936 to 1943                         |
| Parker, Lorenzo D., Andalusia (2).....            | 1933 to 1940                          |
| Perdue, James D., Mobile (1).....                 | 1933 to 1940                          |
| Price, Albert Bascom, Gordo (7).....              | †1933 to 1939                         |
| Ralls, Arthur W., Gadsden (5).....                | †1933 to 1939                         |
| Redden, Raymond Hollis, Sulligent (7).....        | *1933 to 1940                         |
| Riser, William H., Lafayette (5).....             | 1935 to 1942                          |
| Rountree, W. S., Wylam (9).....                   | *1931 to 1938                         |
| Rucker, Edmon W., Birmingham (9).....             | †1936 to 1942                         |
| Salter, Wilbur M., Anniston (4).....              | 1934 to 1941                          |
| Scarborough, B. C., Albertville (5).....          | 1935 to 1942                          |
| Scott, Walter F., Birmingham (9).....             | †1936 to 1942                         |
| Searcy, Harvey Brown, Tuscaloosa (6).....         | *1930 to 1937                         |
| Shamblin, John L., Tuscaloosa (6).....            | 1934 to 1941                          |
| Shropshire, Courtney William, Birmingham (9)..... | *1930 to 1937                         |
| Sledge, Edward Simmons, Mobile (1).....           | †1936 to 1942                         |
| Smith, Gordon R., Ozark (3).....                  | 1934 to 1941                          |
| Smith, Russell Aubrey, Brewton (2).....           | †1932 to 1938                         |
| Speir, Phillip V., Greenville (2).....            | 1917                                  |
| Tankersley, James, Prattville (4).....            | *1935 to 1942                         |
| Taylor, Woodie R., Town Creek (8).....            | *1932 to 1939                         |
| Thacker, Vincent J., Dothan (3).....              | 1935 to 1942                          |
| Thomas, Eugene Marvin, Wedowee (5).....           | †1934 to 1940                         |
| Tillman, John S., Clio (3).....                   | 1935 to 1942                          |
| Waldrop, R. W., Bessemer (9).....                 | *1936 to 1942                         |
| Walker, Alfred A., Birmingham (9).....            | *1930 to 1937                         |
| Walls, J. J., Alexander City (5).....             | *1931 to 1938                         |
| Walsh, Groesbeck, Fairfield (9).....              | 1933 to 1940                          |
| Welch, Stewart, Birmingham (9).....               | 1934 to 1941                          |
| Weldon, Joseph M., Mobile (1).....                | 1935 to 1942                          |
| White, Alexander L., Thomasville (1).....         | *1935 to 1942                         |
| Wilkerson, Fred Wooten, Montgomery (2).....       | †1933 to 1939                         |
| Williams, Mark Johnson, Oxford (4).....           | †1934 to 1940                         |
| Wood, Wiley D., Camp Hill (5).....                | 1933 to 1940                          |
| Wright, David H., Berry (7).....                  | 1932 to 1939                          |
| Total 95  |                                       |

COUNSELLORS-ELECT

|  |              |
|--|--------------|
| Appleton, Thomas H., Collinsville (5)..... | 1936 to 1943 |
| Brunson, Emmett T., Samson (3).....        | 1936 to 1943 |
| Graham, Geo. S., Birmingham (9).....       | 1936 to 1943 |
| Hill, Robert C., York (6).....             | 1936 to 1943 |
| Howell, John V., Marion (6).....           | 1936 to 1943 |
| Total 5                                    |              |

THE ROLL OF THE COLLEGE OF COUNSELLORS BY CONGRESSIONAL DISTRICTS

On this roll the names of the Counsellors are given by Congressional Districts. It is intended to serve as a guide in the election of new Counsellors, with a view to the distribution of them in approximate proportion to the number of members in the several districts. It is not considered to be good policy, and it is not considered to be fair and right, to give a few large towns greatly more than their pro rata share of Counsellors. The calculations are based on the nearest whole number. On April 1, 1936, there were 1,454 members in the County Medical Societies. That would give one Counsellor to every 15 members. The membership set forth in the following is that of April 1.

FIRST DISTRICT

*Names of Counsellors*—J. G. Bedsole and A. L. White, Clarke; E. B. Bailey, Marengo; E. S. Sledge, P. J. M. Acker, D. T. McCall, G. G. Oswalt, J. M. Weldon, and J. D. Perdue, Mobile; and K. A. Mayer, Wilcox.

| County           | Members | Counsellors |
|------------------|---------|-------------|
| Choctaw .....    | 8       | 0           |
| Clarke .....     | 9       | 2           |
| Marengo .....    | 12      | 1           |
| Mobile .....     | 96      | 6           |
| Monroe .....     | 11      | 0           |
| Washington ..... | 4       | 0           |
| Wilcox .....     | 11      | 1           |
|                  | 151     | 10          |

SECOND DISTRICT

*Names of Counsellors*—F. L. Abernethy, Baldwin; P. V. Speir, Butler; W. R. Carter, Conecuh; L. D. Parker, Covington; J. B. Moxley and S. E. Jordan, Crenshaw; M. H. Hagood and R. A. Smith, Escambia; N. G. James, Lowndes; T. B. Hubbard, F. W. Wilkerson, J. A. Martin and Douglas L. Cannon, Montgomery; and R. B. Beard, Pike.

| County           | Members | Counsellors |
|------------------|---------|-------------|
| Baldwin .....    | 12      | 1           |
| Butler .....     | 14      | 1           |
| Conecuh .....    | 7       | 1           |
| Covington .....  | 16      | 1           |
| Crenshaw .....   | 11      | 2           |
| Escambia .....   | 16      | 2           |
| Lowndes .....    | 5       | 1           |
| Montgomery ..... | 78      | 4           |
| Pike .....       | 19      | 1           |
|                  | 178     | 14          |

## THIRD DISTRICT

*Names of Counsellors*—J. S. Tillman, Barbour; C. P. Hayes and W. A. Lewis, Coffee; G. R. Smith, Dale; E. T. Brunson, Geneva; S. L. Burdeshaw, Henry; V. J. Thacker and F. G. Granger, Houston; P. M. Lightfoot, Macon; and Clarence Long, Russell.

| <i>County</i> | <i>Members</i> | <i>Counsellors</i> |
|---------------|----------------|--------------------|
| Barbour ..... | 12             | 1                  |
| Bullock ..... | 9              | 0                  |
| Coffee .....  | 12             | 2                  |
| Dale .....    | 9              | 1                  |
| Geneva .....  | 14             | 1                  |
| Henry .....   | 12             | 1                  |
| Houston ..... | 29             | 2                  |
| Lee .....     | 16             | 0                  |
| Macon .....   | 9              | 1                  |
| Russell ..... | 7              | 1                  |
|               | 129            | 10                 |

## FOURTH DISTRICT

*Names of Counsellors*—James Tankersley, Autauga; W. M. Salter, M. J. Williams and G. A. Cryer, Calhoun; J. F. Alison, S. B. Alison and S. Kirkpatrick, Dallas; and French Craddock, Talladega.

| <i>County</i>   | <i>Members</i> | <i>Counsellors</i> |
|-----------------|----------------|--------------------|
| Autauga .....   | 7              | 1                  |
| Calhoun .....   | 41             | 3                  |
| Clay .....      | 5              | 0                  |
| Coosa .....     | 4              | 0                  |
| Dallas .....    | 36             | 3                  |
| Elmore .....    | 14             | 0                  |
| St. Clair ..... | 11             | 0                  |
| Talladega ..... | 23             | 1                  |
|                 | 141            | 8                  |

## FIFTH DISTRICT

*Names of Counsellors*—W. H. Riser, Chambers; T. H. Appleton, DeKalb; A. W. Ralls, Etowah; B. C. Scarbrough, Marshall; E. M. Thomas, Randolph; and J. A. M. Nolen, J. J. Walls, S. H. Newman and W. D. Wood, Tallapoosa.

| <i>County</i>    | <i>Members</i> | <i>Counsellors</i> |
|------------------|----------------|--------------------|
| Chambers .....   | 13             | 1                  |
| Cherokee .....   | 4              | 0                  |
| Cleburne .....   | 3              | 0                  |
| DeKalb .....     | 14             | 1                  |
| Etowah .....     | 43             | 1                  |
| Marshall .....   | 19             | 1                  |
| Randolph .....   | 15             | 1                  |
| Tallapoosa ..... | 16             | 4                  |
|                  | 127            | 9                  |

## SIXTH DISTRICT

*Names of Counsellors*—J. P. Hayes and V. J. Gragg, Chilton; T. J. Anderson, Ha'e; M. H. Eskew and J. V. Howell, Perry; Joel Chandler, Shelby; R. C. Hill, Sumter; and Sydney Leach, H. B. Searcy and J. L. Shamblin, Tuscaloosa.

| <i>County</i>    | <i>Members</i> | <i>Counsellors</i> |
|------------------|----------------|--------------------|
| Bibb .....       | 11             | 0                  |
| Chilton .....    | 14             | 2                  |
| Greene .....     | 5              | 0                  |
| Hale .....       | 5              | 1                  |
| Perry .....      | 9              | 2                  |
| Shelby .....     | 16             | 1                  |
| Sumter .....     | 13             | 1                  |
| Tuscaloosa ..... | 44             | 3                  |
|                  | 117            | 10                 |

## SEVENTH DISTRICT

*Names of Counsellors*—J. C. Martin and E. D. McAdory, Cullman; J. S. Hollis and D. H. Wright, Fayette; W. A. Gresham, Franklin; R. H. Redden, Lamar; R. L. Hill, Marion; V. L. Ashcraft and A. B. Price, Pickens; G. S. Gilder, Walker; and W. E. Howell, Winston.

| <i>County</i>  | <i>Members</i> | <i>Counsellors</i> |
|----------------|----------------|--------------------|
| Blount .....   | 13             | 0                  |
| Cullman .....  | 15             | 2                  |
| Fayette .....  | 8              | 2                  |
| Franklin ..... | 17             | 1                  |
| Lamar .....    | 11             | 1                  |
| Marion .....   | 12             | 1                  |
| Pickens .....  | 13             | 2                  |
| Walker .....   | 32             | 1                  |
| Winston .....  | 8              | 1                  |
|                | 129            | 11                 |

## EIGHTH DISTRICT

*Names of Counsellors*—W. H. Greer, Colbert; Rayford Hodges, Jackson; A. A. Jackson, Lauderdale; W. R. Taylor, Lawrence; M. D. Dupree, Limestone; E. V. Caldwell and W. C. Hatchett, Madison; and E. C. Chenault and F. L. Chenault, Morgan.

| <i>County</i>    | <i>Members</i> | <i>Counsellors</i> |
|------------------|----------------|--------------------|
| Colbert .....    | 17             | 1                  |
| Jackson .....    | 13             | 1                  |
| Lauderdale ..... | 23             | 1                  |
| Lawrence .....   | 10             | 1                  |
| Limestone .....  | 12             | 1                  |
| Madison .....    | 29             | 2                  |
| Morgan .....     | 25             | 2                  |
|                  | 129            | 9                  |

## NINTH DISTRICT

*Names of Counsellors*—G. S. Graham, S. H. Welch, J. M. Mason, Cabot Lull, R. W. Waldrop, W. F. Scott, E. W. Rucker, J. D. Dowling, M. Y. Dabney, B. S. Lester, C. W. Shropshire, Alfred A. Walker, E. M. Mason, W. S. Rountree, L'oyd Noland, J. R. Garber, D. S. Moore, Jr., Groesbeck Walsh, and S. L. Ledbetter, Jr.

| <i>County</i>   | <i>Members</i> | <i>Counsellors</i> |
|-----------------|----------------|--------------------|
| Jefferson ..... | 353            | 19                 |



# THE ROLL OF CORRESPONDENTS

"Distinguished members of the medical profession residing outside of the State, and Counsellors of the Association, who after not less than ten years of faithful service may have resigned their counsellorships, shall be eligible for election as Correspondents.

"Correspondents shall have the privilege of transmitting or presenting to the Association such communications, or scientific essays, as they may deem proper."—*From the Constitution.*

| <i>Name and Address</i>               | <i>Date of Election</i> |
|---------------------------------------|-------------------------|
| Andrew J. Coley, Oklahoma City        | 1909                    |
| W. S. Thayer, Baltimore               | 1921                    |
| Lewellys F. Barker, Baltimore         | 1921                    |
| Rudolph Matas, New Orleans            | 1921                    |
| Frank Smithies, Chicago               | 1921                    |
| John B. Elliott, Jr., New Orleans     | 1921                    |
| Howard A. Kelly, Baltimore            | 1921                    |
| Wm. J. Mayo, Rochester, Minn.         | 1921                    |
| George W. Crile, Cleveland, Ohio      | 1921                    |
| Henry A. Christian, Boston            | 1921                    |
| J. Whitridge Williams, Baltimore, Md. | 1921                    |
| Chas. H. Mayo, Rochester, Minn.       | 1922                    |
| H. A. Royster, Raleigh, N. C.         | 1926                    |
| Stewart Roberts, Atlanta              | 1927                    |
| G. Canby Robinson, Nashville          | 1928                    |
| Louis B. Wilson, Rochester, Minn.     | 1930                    |
| R. S. Cunningham, Nashville           | 1932                    |
| A. Benson Cannon, New York            | 1932                    |
| J. She-ton Horsley, Richmond          | 1933                    |
| Russell L. Cecil, New York            | 1934                    |
| George H. Semken, New York            | 1935                    |

## SCHEDULE OF THE ANNUAL SESSIONS AND PRESIDENTS SINCE THE RE- ORGANIZATION IN 1868

| <i>Place and President</i>            | <i>Year</i> |
|---------------------------------------|-------------|
| Selma—Albert Galatin Mabry            | 1868        |
| Mobile—Albert Galatin Mabry           | 1869        |
| Montgomery—Richard Frazer Michel      | 1870        |
| Mobile—Francis Armstrong Ross         | 1871        |
| Huntsville—Thomas Childress Osborne   | 1872        |
| Tuscaloosa—George Ernest Kumpe        | 1873        |
| Selma—George Augustus Ketchum         | 1874        |
| Montgomery—Job Sobieski Weatherly     | 1875        |
| Mobile—John Jefferson Dement          | 1876        |
| Birmingham—Edward Davies McDaniel     | 1877        |
| Eufaula—Peter Bryce                   | 1878        |
| Selma—Robert Dickens Webb             | 1879        |
| Huntsville—Edmund Pendleton Gaines    | 1880        |
| Montgomery—William Henry Anderson     | 1881        |
| Mobile—John Brown Gaston              | 1882        |
| Birmingham—Clifford Daniel Parke      | 1883        |
| Selma—Mortimer Harvev Jordan          | 1884        |
| Greenville—Benjamin Hogan Riggs       | 1885        |
| Anniston—Francis Marion Peterson      | 1886        |
| Tuscaloosa—Samuel Dibble Seelve       | 1887        |
| Montgomery—Edward Henry Sholl         | 1888        |
| Mobile—Milton Columbus Baldrige       | 1889        |
| Birmingham—Charles Higgs Franklin     | 1890        |
| Huntsville—William Henry Sanders      | 1891        |
| Montgomery—Benjamin James Baldwin     | 1892        |
| Selma—James Thomas Searcy             | 1893        |
| Birmingham—Thaddeus Lindley Robertson | 1894        |

| <i>Place and President</i>         | <i>Year</i> |
|------------------------------------|-------------|
| Mobile—Richard Matthew Fletcher    | 1895        |
| Montgomery—William Henry Johnston  | 1896        |
| Selma—Barckley Wallace Toole       | 1897        |
| Birmingham—Luther Leonidas Hill    | 1898        |
| Mobile—Henry Altamont Moody        | 1899        |
| Montgomery—John Clarke LeGrande    | 1900        |
| Selma—Russell McWhorter Cunningham | 1901        |
| Birmingham—Edwin Lesley Marechal   | 1902        |
| Talladega—Glenn Andrews            | 1903        |
| Mobile—Matthew Bunyan Cameron      | 1904        |
| Montgomery—Capers Capehart Jones   | 1905        |
| Birmingham—Eugene DuBose Bondurant | 1906        |
| Mobile—George Tighlman McWhorter   | 1907        |
| Montgomery—Samuel Wallace Welch    | 1908        |
| Birmingham—Benjamin Leon Wyman     | 1909        |
| Mobile—Wooten Moore Wilkerson      | 1910        |
| Montgomery—Wyatt Heflin Blake      | 1911        |
| Birmingham—Lewis Coleman Morris    | 1912        |
| Mobile—Harry Tutwiler Inge         | 1913        |
| Montgomery—Robert S. Hill          | 1914        |
| Birmingham—Benjamin Britt Simms    | 1915        |
| Mobile—James Norment Baker         | 1916        |
| Montgomery—Henry Green             | 1917        |
| Birmingham—William Dempsey Partlow | 1918        |
| Mobile—Isaac LaFayette Watkins     | 1919        |
| Anniston—James Somerville McLester | 1920        |
| Montgomery—Louis William Johnston  | 1921        |
| Birmingham—Dyer F. Talley          | 1922        |
| Mobile—Walter S. Britt             | 1923        |
| Montgomery—W. W. Harper            | 1924        |
| Birmingham—J. D. Heacock           | 1925        |
| Mobile—C. A. Mohr                  | 1926        |
| Montgomery—A. L. Harlan            | 1927        |
| Birmingham—John D. S. Davis        | 1928        |
| Mobile—E. V. Caldwell              | 1929        |
| Montgomery—L. E. Broughton         | 1930        |
| Birmingham—W. G. Harrison          | 1931        |
| Mobile—Toulmin Gaines              | 1932        |
| Montgomery—Samuel Kirkpatrick      | 1933        |
| Birmingham—James R. Garber         | 1934        |
| Mobile—William M. Cunningham       | 1935        |
| Montgomery—Charles A. Thigpen      | 1936        |

## SECRETARIES OF THE MEDICAL ASSOCIATION OF THE STATE OF ALABAMA

|           |                   |
|-----------|-------------------|
| 1852-1854 | George A. Ketchum |
| 1854-1855 | R. Miller         |
| 1869-1873 | Jerome Cochran    |
| 1874-1878 | B. H. Riggs       |
| 1879-1892 | T. A. Means       |
| 1893-1897 | J. R. Jordan      |
| 1897-1904 | G. P. Waller      |
| 1904-1906 | L. C. Morris      |
| 1906-1915 | J. N. Baker       |
| 1915-1923 | H. G. Perry       |
| 1923-1924 | Douglas L. Cannon |
| 1924-1930 | B. B. Simms       |
| 1930-     | Douglas L. Cannon |

## TREASURERS OF THE MEDICAL ASSOCIATION OF THE STATE OF ALABAMA

|           |               |
|-----------|---------------|
| 1854-1855 | W. P. Reese   |
| 1869-1898 | W. C. Jackson |
| 1898-1915 | H. G. Perry   |
| 1915-     | J. U. Ray     |

### SCHEDULE OF JEROME COCHRAN LECTURERS

- 1899—J. T. Searcy, Tuscaloosa—What Is Insanity?
- 1900—Wm. Osler, Baltimore—Not present.
- 1901—Wm. Osler, Baltimore—Not present.
- 1902—Nathan Bozeman, New York—Declined.
- 1903—George H. Price, Nashville—The History of Medicine.
- 1904—W. S. Thayer, Baltimore—Cardiac and Vascular Complications of Typhoid Fever.
- 1905—Robert Abbe, New York—The Problems of Surgery.
- 1906—Joseph Collins, Boston—Arteriosclerosis.
- 1907—Nicholas Senn, Chicago—Final Triumph of Scientific Medicine.
- 1908—E. L. Marechal, Mobile—Absent.
- 1909—Lewellys F. Barker, Baltimore—Clinical Methods of Cardiac Investigation.
- 1910—Frank S. Meara, New York—Some Problems of Nutrition in Early Life.
- 1911—Rudolph Matas, New Orleans—Inflammatory Tuberculosis.
- 1912—Maurice H. Richardson, Boston—Elimination of Preventable Disasters from Surgery.
- 1913—L. L. Hill, Montgomery—Surgical Complications and Sequelae of Typhoid Fever.
- 1914—Frank Smithies, Chicago—Contributions of the Twentieth Century to the Better Understanding of Gastric Cancer.
- 1915—John B. Elliott, Jr., New Orleans—Abscess of Liver.
- 1916—Howard A. Kelly, Baltimore—Radium Therapy.
- 1917—Wm. J. Mayo, Rochester—Importance of Septic Infection in the Three Great Plagues.
- 1918—George E. Bushnell, Washington—The Army in Relation to the Tuberculosis Problem.
- 1919—George W. Crile, Cleveland, Ohio—Abdominal Surgery in Civil and Military Hospitals.
- 1920—Henry A. Christian, Boston—Bright's Disease With Special Reference to Its Treatment.
- 1921—J. Whitridge Williams, Baltimore—A Critical Review of Twenty-One Years' Experience with Caesarean Section.
- 1922—Chas. H. Mayo, Rochester, Minn.—The Thyroid and Its Diseases.
- 1923—Jas. S. McLester, Birmingham—Nutrition in Its Newer Aspects.
- 1924—James S. Stone, Boston—Abdominal Diagnoses in Children.
- 1925—H. A. Royster, Raleigh—The Surgeon's Heritage and Outlook.
- 1926—Stewart Roberts, Atlanta—The Heart Muscle.
- 1927—G. Canby Robinson, Nashville—The Mechanism of Heart Failure and Its Correction.
- 1928—John B. Deaver, Philadelphia—Chronic Pancreatitis.
- 1929—Louis B. Wilson, Rochester, Minn.—Some Suggestions for Improved Training of Medical Specialists.
- 1930—Walter E. Sistrunk, Dallas, Texas—The Part That Surgical Anesthesia Has Played in Medical Science.

1931—R. S. Cunningham, Nashville, Tenn.—Studies on the Pathology of Tuberculosis and Syphilis.

1932—A. Benson Cannon, New York—Practical Points on the Diagnosis and Treatment of the so-called Lymphoblastoma Group of Diseases.

1933—J. Shelton Horsley, Richmond—Cancer of the Stomach and Colon.

1934—Russell L. Cecil, New York—Present Trends in the Study of Rheumatic Fever and Rheumatoid Arthritis.

1935—George H. Semken, New York—A Consideration of Tumors of the Breast.

1936—William D. Partlow, Tuscaloosa—A Debt the World Owes Medical Science.

### OFFICERS OF THE ASSOCIATION

1936-1937

#### PRESIDENT

LLOYD NOLAND (1937).....Fairfield

#### VICE-PRESIDENTS

A. B. COXWELL (1937).....Monroeville  
W. M. SALTER (1938).....Anniston  
C. P. HAYES (1939).....Elba  
M. E. SMITH (1940).....America

#### SECRETARY

DOUGLAS L. CANNON (1939).....Montgomery

#### TREASURER

J. U. RAY (1938).....Woodstock

#### THE STATE BOARD OF CENSORS

E. V. CALDWELL, Chm. (1940).....Huntsville  
S. A. GORDON (1940).....Marion  
J. D. PERDUE (1939).....Mobile  
W. F. SCOTT (1939).....Birmingham  
M. S. DAVIE (1938).....Dothan  
F. W. WILKERSON (1938).....Montgomery  
T. B. HUBBARD (1937).....Montgomery  
W. D. PARTLOW (1937).....Tuscaloosa  
K. A. MAYER (1941).....Lower Peach Tree  
M. Y. DABNEY (1941).....Birmingham

#### STATE HEALTH OFFICER

J. N. BAKER (1940).....Montgomery

#### DELEGATES AND ALTERNATES TO THE AMERICAN MEDICAL ASSOCIATION

Delegate—J. N. BAKER.....Montgomery  
Delegate—A. A. WALKER.....Birmingham  
Alternate—FRED WILKERSON.....Montgomery  
Alternate—G. O. SEGREST.....Mobile  
(Terms expire with the 1937 session of the  
American Medical Association)

#### COMMITTEE ON PUBLIC RELATIONS

JOHN A. MARTIN, Chairman.....Montgomery  
G. O. SEGREST.....Mobile  
S. KIRKPATRICK.....Selma  
J. R. GARBER.....Birmingham  
M. M. DUNCAN.....Huntsville



COMMITTEE ON MENTAL HYGIENE

|   |      |
|---|------|
| FRANK A. KAY, Chairman, Tuscaloosa..... | 1938 |
| J. G. BEDSOLE, Jackson.....             | 1937 |
| W. S. LITTLEJOHN, Birmingham.....       | 1939 |

COMMITTEE ON MATERNAL AND INFANT WELFARE

|  |      |
|--|------|
| A. E. THOMAS Chairman, Montgomery..... | 1938 |
| HUGHES KENNEDY, JR., Birmingham.....   | 1937 |
| J. M. WELDON, Mobile.....              | 1939 |

COMMITTEE ON PREVENTION OF CANCER

|   |      |
|---|------|
| K. F. KESMODEL, Chairman, Birmingham..... | 1938 |
| J. P. CHAPMAN, Selma.....                 | 1937 |
| H. M. SIMPSON, Florence.....              | 1939 |

COMMITTEE ON PREVENTION OF BLINDNESS AND  
DEAFNESS

|                                      |      |
|--------------------------------------|------|
| LUCIEN BROWN, Chairman, Gadsden..... | 1939 |
| HARVEY SEARCY, Tuscaloosa.....       | 1937 |
| B. B. WARWICK, Talladega.....        | 1938 |

COMMITTEE ON POSTGRADUATE STUDY

|   |      |
|---|------|
| RALPH McBURNEY, Chairman, University..... | 1939 |
| CABOT LULL, Birmingham.....               | 1938 |
| CLARENCE K. WEIL, Montgomery.....         | 1937 |

COMMITTEE ON FRACTURES AND FIRST AID

|  |      |
|--|------|
| H. EARLE CONWELL, Chmn., Birmingham..... | 1939 |
| MARCUS SKINNER, Selma.....               | 1938 |
| W. S. ROUNTREE, Wylam.....               | 1937 |

## DEPARTMENT OF PUBLIC HEALTH

### BUREAU OF ADMINISTRATION

J. N. Baker, M. D.

State Health Officer in Charge

### ALABAMA'S POLIOMYELITIS EPIDEMIC

For the information and guidance of the entire medical profession of this State, the salient facts and happenings which have occurred thus far (July 31st, 1936) pertaining to the present poliomyelitis epidemic are briefly outlined below by the State Health Officer. The spot map appearing at page 43 of this issue of The Journal, together with the listing of cases by counties (appended), give one, at a glance, a clear picture of the problem and serve to point out the fact that, in so far as our own State is concerned, this epidemic, beginning in certain of our northern counties, is still almost exclusively confined to the northern half of the State. With possibly one or two exceptions, those cases occurring in the central and southern tier of counties, might rightly be viewed as "sporadic," in that epidemiologic studies do not reveal definite contact histories.

Tennessee, immediately to the north of us, has reported seventy-one cases and five deaths; Georgia, immediately to the east, has reported eighteen cases and three deaths; Mississippi, immediately to the west, has reported eighteen cases and no deaths. In each of these states, the majority of their cases have occurred in counties adjacent to the Alabama border. Thus far, no case from Florida has been reported to the health department. A glance at the map may afford an explanation for this,

inasmuch as our southern counties have been but slightly, or not at all, involved.

At the close of the day, July 31st, there had been reported in Alabama two hundred thirty-four cases and fourteen deaths, all of which had paralytic involvement of greater or less degree and such paralytic manifestations have furnished the criterion upon which reporting and incidence of the disease have been based. "Suspicious" cases, not evincing such paralysis, have not been included.

During the first five months of 1936 (January 1st through May 31st) there had been reported for the entire State of Alabama but eleven cases of poliomyelitis. This incidence of the disease for a population group of some two and three-fourths millions may be considered as within the normal range of occurrence. During the week of June 13th, eight new cases were reported to the health department; four (4) from Morgan County, and one each from Jefferson, Lawrence, Limestone and Madison Counties. Immediately upon the receipt of this information the State Department of Health inaugurated plans for a thorough search of cases and instigated suitable methods of isolation and quarantine of all cases occurring. The public was promptly taken into full confidence by giving to it the actual facts and by making an earnest appeal to it to co-operate in every possible way with the health authorities and physicians in an effort to confine the epidemic within that area of the State in which it seemed to be quite definitely limited, viz.; the northern group of counties. The response on the public's part was immediate

and wholehearted, and, at no time, has it been panicky or hysterical. Advice and instructions regarding the potential danger of group gatherings, migration and congregation have been received in a superb spirit and followed. The medical profession, of course, sensed the gravity of the situation and, like the Rock of Gibraltar, has stood squarely behind its health department, bolstering and upholding its hand and efforts at every point.

When this subtle enemy was first unleashed on Alabama nothing was definitely known to medical science in the way of prevention which offered much, if any, hope. The present status of immunising vaccines was so uncertain and unsafe as to preclude their general employment or that they be given approval by the health department. The rationale of the recent experimental work which has been carried on in the laboratories of the National Institute of Health by Dr. Charles Armstrong and Dr. W. T. Harrison of the Public Health Service, using solutions of picric acid and alum on the nasal mucous membrane of monkeys to block the entrance of poliomyelitis virus to the central nervous system, seemed both plausible and sound. After a rather extensive trial of these agents both on monkeys and on humans, their harmlessness, when applied according to instructions, appeared to be definitely established. Although an opportunity had not presented as yet for the testing out of this preventive through mass application to humans, the Surgeon General and his co-workers strongly advised as widespread use as could possibly be made of this agent in our efforts to control and stamp out the present epidemic in Alabama. With this endorsement of the preventive spray on the part of the United States Public Health Service, the entire medical profession of the State was made acquainted with its properties and possibilities, by having sent to each one the following communication:

With the epidemic of poliomyelitis now prevalent in North Alabama, the question of any means of prevention is naturally raised. The poliomyelitis vaccines have not proven efficient so we are not recommending their use.

As regards a nasal spray, Armstrong and Harrison of the United States Public Health Service have reported that they were able to prevent poliomyelitis in a large percentage of monkeys by the

use of sprays of various types (United States Public Health Service Reports, February 28, 1936 and March 5, 1936). The experimental work with these sprays has been entirely satisfactory on monkeys. Sufficient human volunteers have tried these solutions to show that they are harmless.

The following is a quotation from a report just received from Washington:

"The evidence regarding this method is as yet based entirely upon animal experimentation and the proposed spray is not at present to be regarded as of proven value in the prevention of poliomyelitis in man. Perhaps it would be advisable to await the results of further trials before giving the method general application. If it is desired to use the solution it should be sprayed into the nostrils three or four times on alternate days, and thereafter weekly during the presence of poliomyelitis. The nasal spraying should be thorough and the solution should reach the pharynx as well, when a bitter taste will be noted. The early applications at least should be administered by a physician. The experimental work on animals is still being pursued. Therefore, the tentative procedure is subject to such changes as may be dictated by future findings.

"The most effective solution so far developed during experimentation on monkeys is prepared as follows:

Solution A—Dissolve one gram (1 gm.) of picric acid in 100 cc. of physiologic salt solution (0.85%). (Warming facilitates solution of the picric acid.)

Solution B—Dissolve 1 gram (1 gm.) of sodium aluminum sulphate (sodium alum) in 100 cc. of physiologic salt solution (0.85%). Any turbidity in this solution should be removed by filtering one or more times through the same filter paper.

Mix solutions A and B in equal amounts. The resulting mixture, which contains 0.5% picric acid and 0.5% alum, is sufficiently antiseptic to prevent the growth of organisms and is ready for use as a spray. Homemade concoctions are not favored."

In view of the fact that these solutions may have value we are sending you this information for your guidance. In cases when it is impractical to use a spray, nose drops might be used, but particular attention should be directed to see that the solution reaches all parts of the nose, and the superior turbinates in particular.

At the request of the State Health Officer, the Surgeon General promptly detailed Dr. Armstrong to Alabama, who met with the physicians at many points in the State for the purpose of more fully acquainting them with the scientific experiments upon which the use of the spray was based. In order to expedite the more rapid and generalised use of this preventive by all classes of our population, many nurses have been



provided through the generous aid of the Works Progress Administration in both organized and unorganized counties, who are working in close co-operation with and under the direction of the physicians and health workers.

In addition to these efforts, directed immediately at the control of the epidemic, the health department felt that another most valuable service should not be ignored, nor too long postponed; that is, that some sort of machinery should promptly be created whereby a group of nurses, instructed in the fundamentals of the after-care of paralysed limbs, might be made available to physicians within the stricken area, and who will work with and under the physician's instructions. In the formulation of this program, which now is well under way, valuable assistance is being given by the Public Health Service, the Works Progress Administration and by the Division of Rehabilitation of the Department of Education, which is the official agency of the State responsible for the crippled children's program within the State. No physician can fail to appreciate the great value and need for such a program in order to hold to a minimum deforming and crippling contractures so likely to follow in the wake of paralytic cases.

As stated above, as this is being written—July 31st—234 paralytic cases have been reported. The sequence of these cases are as follows: On June 30th, fourteen new cases had been reported. The first week in July there were thirty-eight additional cases; the second week brought forth eighty-two additional cases; the third week thirty-five additional cases and the fourth week fifty-four additional cases. The disease is still definitely limited to the northern half of the State and appears now also to be definitely on the down swing. With the splendid co-operation which has been given from every quarter and from all sides and with a continued and persistent application of the precautionary and preventive measures recommended by the health department, the outlook is full of hopeful promise that this insidious disease may be definitely and quickly conquered in Alabama. But, until we are sure of our ground, our efforts must still be continuing and relentless.

A listing of cases by counties follows:

## POLIOMYELITIS CASES BY COUNTIES

June 1-July 31, 1936

|                         |           |
|-------------------------|-----------|
| Bibb County .....       | 1         |
| Blount County .....     | 5         |
| Bullock County .....    | 1         |
| Calhoun County .....    | 1         |
| Cherokee County .....   | 2         |
| Clay County .....       | 1         |
| Colbert County .....    | 24        |
| Coosa County .....      | 1         |
| Covington County .....  | 1         |
| Cullman County .....    | 6         |
| DeKalb County .....     | 1         |
| Elmore County .....     | 1         |
| Escambia County .....   | 2         |
| Etowah County .....     | 1         |
| Fayette County .....    | 1         |
| Franklin County .....   | 16        |
| Geneva County .....     | 1         |
| Jefferson County .....  | 42        |
| Lauderdale County ..... | 29        |
| Lawrence County .....   | 9         |
| Limestone County .....  | 15        |
| Madison County .....    | 7         |
| Marengo County .....    | 2         |
| Marshall County .....   | 2         |
| Morgan County .....     | 33        |
| Pickens County .....    | 1         |
| Randolph County .....   | 1         |
| She by County .....     | 3         |
| St. Clair County .....  | 2         |
| Talladega County .....  | 1         |
| Tuscaloosa County ..... | 2         |
| Walker County .....     | 5         |
| Winston County .....    | 3         |
|                         | <hr/>     |
|                         | 223       |
| Prior to June 1 .....   | 11        |
| Total .....             | <hr/> 234 |

## BUREAU OF LABORATORIES

James G. McAlpine, Ph. D., Director

### CARRIERS\*

#### I. INTRODUCTION AND DEFINITIONS

Carriers are most important in the practice of preventive medicine since they frequently cause circumscribed outbreaks and extensive epidemics of many infectious diseases. Chapin<sup>1</sup> states that "undoubtedly the most fruitful medical discovery of the last century, and perhaps of all time, was the discovery of the parasitic nature of the infectious diseases. Probably the most important discovery bearing on preventive medicine since the demonstration of the

\*This is the first of a series of articles on the subject.

1. Chapin, C. V.: The Sources and Modes of Infection. John Wiley & Sons, Inc. New York. 1916.

bacterial origin of disease is that disease germs frequently invade the body without causing disease." In the early days of bacteriology it was thought that the mere approximation of the causative organism and a species of animal in which it could multiply was all that was necessary for the production of disease. Now it is known that there is a delicate balance between the susceptibility or resistance of the individual animal—or human—and the virulence of the special strain of the invading microorganism. As these factors vary, it is possible to obtain severe cases of the disease with all its symptoms, mild cases, and persons in whom the organism may exist but no symptoms whatsoever are exhibited.

The conception of the carrier which is given above, however, is not the whole story. When a person recovers from an attack of the disease, the parasite may be completely destroyed, and this probably happens in the majority of cases. But in some individuals a drawn battle between the host and the microorganism appears to take place; in such instances the host may actively secrete or distribute the parasite for varying periods of time or even for the life of the individual. The discovery of the "missed case" and the recovered carrier did much to advance the field of preventive medicine.

A definition of a carrier is important at this point. Nichols<sup>2</sup> has given one that is brief but inclusive: "A carrier is an individual who harbors and transmits pathogenic parasites without showing the usual evidence of infection." He elaborates further on this as follows: "Some carriers show no clinical or pathological evidences at all and are really healthy, but the most important carriers are only apparently healthy, because, on careful examination, they do show signs or symptoms of local infection. Although in some instances the parasites are carried purely mechanically, in the worst carriers they have a home which is usually a slight chronic inflammatory lesion of a mucous membrane. The absence of disease in carriers is due to the fact that the carrier either (1) is in the stage of incubation; (2) has a general but not a local immunity; or (3) is too slightly infected to show symptoms.

There are many classifications of carriers which often tend to confuse the individual who is not concerned with public health primarily. Rosenau<sup>3</sup> has defined them simply, as follows: "Carriers may be acute or temporary, chronic or permanent, convalescent, passive or active, virulent or avirulent, intermittent, intestinal, oral, urinary, etc." Most of the definitions need no elaboration. By a passive carrier he means an individual who has not had the disease in question and an active carrier is one who harbors the pathogenic bacterium after an attack.

Ledingham and Arkwright<sup>4</sup> recognized the importance of carriers and their relationship to the recrudescence of epidemics. They emphasized the role of the chronic carrier in typhoid fever "as the first link in a chain of cases constituting a fresh outbreak, while the transitory carrier whose infection has been abortive and the precocious carrier whose symptoms have not yet set in are the potent factors in the future spread." According to them paratyphoid fever, diphtheria, cerebrospinal meningitis, dysentery, and cholera were spread by carriers.

Chapin<sup>5</sup> has described the change in public health procedures which took place in the United States after the ubiquity of the carrier state had been recognized. The following excerpt is quoted from him: "When I began work as a health officer in 1884 the filth theory was still in favor, and it was generally believed that the germs of disease commonly grew in decaying organic matter. Yet contagion was recognized as an important factor in the spread of disease, and the isolation of the sick was more and more insisted upon. Fifteen years ago probably most health officers believed that the contagious diseases could be completely stamped out if only all persons sick with them could be isolated. The air was thought to be the chief medium for their transmission and fomites the mechanism for their passage from place to place. . . .

3. Rosenau, M. J.: *Preventive Medicine and Hygiene*. D. Appleton-Century Co. New York. 1935.

4. Ledingham, J. C. G. and Arkwright, J. A.: *The Carrier Problem in Infectious Diseases*. Longmans Green and Co. New York. 1912.

5. Chapin, C. V.: *The Sources and Modes of Infection*. 2nd Edition. John Wiley & Sons, Inc. New York. 1916.

2. Nichols, H. J.: *Carriers in Infectious Disease*. Williams & Wilkins Co. Baltimore. 1922.



It now appears that the growth of disease germs outside of the body is not frequent enough to be an important factor in the causation of disease, but their growth in the body without causing sickness, their latency as it were, often for many months, is a factor of very great significance. We know now that direct contact with the sick, or with healthy carriers of disease germs, is an exceedingly frequent mode of transmission, and that infection by means of air, or from infected articles is not nearly as common as was formerly believed."

## BUREAU OF PREVENTABLE DISEASES

D. G. Gill, M. D., Director

### AMBULATORY PNEUMOTHORAX IN PULMONARY TUBERCULOSIS

In the April 18th issue of the *Journal of the American Medical Association*, Dr. J. W. Culter discusses the increasing importance of pneumothorax therapy in pulmonary tuberculosis. His article has been chosen for the August number of *Tuberculosis Abstracts*, issued by the National Tuberculosis Association. The physicians in the six Alabama counties with small tuberculosis sanatoria, and those in the adjoining counties, have become quite enthusiastic about collapse therapy in tuberculosis and will be further encouraged by such articles to find new cases suitable for collapse. Other physicians over Alabama having read the article will decry the fact that more sanatoria are not available for such work, but will do very little toward adding pneumothorax to their medical armamentarium. If we wait for adequate sanatorium facilities before using pneumothorax therapy, literally thousands of tuberculous patients will have missed their chance for satisfactory arrestment of their disease. Before discussing a possible solution to our tuberculosis treatment problem, let us review a few high points of Dr. Culter's paper.

Toxemia from tuberculosis may be of low grade, allowing the patient to enjoy relatively good health, or it may be acute and apparently out of all proportion to the extent of the disease. Toxemia makes the patient feel ill and favors the spread of tuberculosis in the lungs. This spread re-

sults in more toxemia. To effect a cure one must first of all break through the vicious cycle and reverse the trend. Pneumothorax collapses the diseased area of the lung and shuts off the source of the toxemia. Healing of the diseased areas results only after long continued collapse.

Conservative bed rest will often give clinical improvement in a rather short period, but anatomic improvement often lags far behind clinic improvement. Many patients will not devote the necessary time to bed rest, especially if they begin to feel well. Pneumothorax therapy attacks this evil at its source, because the physician has control of the disease and can allow the patient to take considerable more exercise in a shorter period. There is no fixed rule, however, as to how long pneumothorax must be continued. From two to five years may be required, depending on the involvement and the progress shown.

From an economic standpoint, the tuberculosis patient is greatly benefited by pneumothorax. He can usually be cared for at home after a short sanatorium stay and can certainly return to gainful employment sooner than he would with bed rest alone. A paying patient, incidentally, is an asset to his physician.

From a public health standpoint, pneumothorax therapy is a boon, because with a successful collapse, tubercle bacilli soon disappear from the sputum. This means that further spread of the disease to members of the family and the community is made impossible.

Every phthisiologist realizes that the best place to do pneumothorax work is in a well equipped sanatorium, where x-ray and operative facilities are available, and understanding sympathetic supervision is to be had. It is possible on the other hand to have a very short institutional stay and to continue pneumothorax refills in the home or on an ambulatory basis. Short sanatorium stay, as against long stay, will undoubtedly increase the number of operative complications, but with only a few beds available a quick turnover means more collapse cases.

We should, therefore, in those counties without tuberculosis sanatoria, be thinking in terms of setting aside a few beds in general hospitals for doing pneumothorax and

other tuberculosis collapse therapy to demonstrate to ourselves and to the public that we are up-to-date in our handling of pulmonary tuberculosis. As physicians, we should make a serious effort to see that our few existing sanatorium beds are used to the best treatment advantage by having a fairly rapid turnover of patients. By placing cases suitable for collapse on a preferred admission basis the ultimate results of sanatorium work will be much better.

In conclusion, if a physician is well trained to do pneumothorax work and has access to x-ray facilities, he can do this work in the home when other facilities are not available. Unless he knows the indications and the contraindications for artificial pneumothorax and is familiar with the complications he should serve as a feeder to men who are doing this work.

R. A. B.

#### CAN SYPHILIS BE CONTROLLED?

The fact that syphilis can be controlled is gradually, but persistently, appearing in various medical periodicals. Dr. Rietz, Commissioner of Health of Stockholm, Sweden, reported to the American Public Health Association last October the decline in syphilis in Sweden. In 1919 there were 6,000 new cases. In 1934 there were only 431 new cases.

A decrease in syphilis has also been noted in England and Wales. In 20 years the death rate among infants due to congenital syphilis in England and Wales has fallen from 1.34 to 0.47 per 1,000 live births. The Massachusetts Department of Public Health also reports that there is evidence of a decreased prevalence of syphilis in that state.

This decrease in prevalence of syphilis is due to the modern method of attack of the problem of syphilis. This modern method is epidemiologic investigation and treatment. If every infectious case could be found and adequately treated, syphilis would begin to decline.

THE 1937 MEETING OF  
THE ASSOCIATION  
WILL BE HELD IN BIRMINGHAM

## BUREAU OF HYGIENE AND NURSING

B. F. Austin, M. D., Director

### ABORTIONS

The term abortion is applied to the termination of a previable uterine pregnancy. Maternal deaths caused by abortions are included in maternal mortality rates but they are not, for the most part, problems of obstetric mortality. Physicians feel a sense of responsibility for carrying safely through pregnancy and delivery those prenatal cases that apply to them prior to time for delivery. Deaths occurring early in pregnancy are rarely seen by a physician until the women are decidedly abnormal or practically moribund. Few abortion cases make any effort to obtain medical aid until they are desperately ill as a result of complications. This fact leads one to believe that many abortions are self-induced or illegally performed. The prevalence of criminal abortions is unknown because of the difficulty encountered in obtaining evidence of such. However, circumstances frequently cause investigators to suspect that the practice is not uncommon.

The recent five-year study of maternal mortality in Jefferson County disclosed the facts that 24% of all maternal deaths were due to abortions and 75% of all maternal deaths prior to the 28th week of pregnancy were due to abortions.

Everyone agrees that the widespread abortion problem is primarily one of a sociologic nature and only secondarily can it be considered as a medical problem. Economics and social conditions, particularly among white married women, are responsible for more abortions than is generally supposed. Induced abortions are produced by the patients themselves, lay persons who know little about asepsis and occasionally by unethical physicians. The pregnant woman does not realize the seriousness of abortion nor is it generally known how extremely dangerous the act becomes when done with criminal intent. The practice, therefore, will flourish so long as education of the laity, regarding the grave dangers encountered by those who submit themselves to induced abortions, is not stressed.

The responsibility of physicians in alleviating the medical social problems pre-



sented in the abortion situation rests largely in educating the public and chasing those illegal members of the profession out of practice. Education of the public regarding the dangers encountered in abortion, whether spontaneous or induced, can be done through the county medical society, county health department and by individual physicians. Furthermore, the physician can do much towards eliminating abortions due to syphilis by insisting upon antiluetic treatment when indicated. In the study made in Jefferson County it was observed that septic and potentially septic cases of abortion were sometimes subjected to operative procedures, particularly curettage. It is recognized as poor judgment in most cases of this type to attempt any operative invasion of the uterus. Fever is definitely a contraindication for curettage and all cases apparently requiring it should have a careful history taken. Physicians, therefore, may aid in reducing deaths due to abortions by exercising greater care in operative procedures. Hemorrhage is frequently reported as the cause of death following abortion. In these cases transfusions by the attending physician would doubtless aid in the prevention of deaths. Physicians must be ever on the alert in the management of all cases of abortion and give the best medical care possible.

Therapeutic abortion is performed only to safeguard the life of the expectant mother against disease conditions which are so dangerous in themselves that the added load of pregnancy would likely prove fatal. Everyone knows it but we repeat for emphasis that it is always advisable to obtain consultation with one or more physicians when one contemplates doing a therapeutic abortion. This will give the physician professional protection if nothing more.

We close this discourse with a quotation from the resume' made by the committee from the Jefferson County Medical Society that made the study of the maternal deaths occurring over a five-year period in that County.

"Abortions cast one of the greatest and most sinister shadows across the entire field of obstetrics. Unquestionably, much of the onus attached to this cause of maternal death is due to the criminal aspect; but, this alone does not dismiss the subject

from further consideration. Physicians and patients are responsible in performing and providing suitable care in these cases. Too often, the patients are infected or exsanguinated before summoning aid; while not infrequently, the doctor is singled out for maltreatment. The public must undergo a change in regard to the seriousness of abortions, especially those of a criminal nature. It is commentary upon the intelligence and decency of the public that so many submit to the dangers of operations at the hands of unethical physicians, of unscrupulous nurses, and others qualifying as criminal abortionists, and to their own misdirected efforts at destruction of a life in utero. The Committee is of the opinion that all abortions should be made reportable to departments of health, as also later interruptions of pregnancy."

---

## BUREAU OF SANITATION

G. H. Hazlehurst, C. E., M. C. E., Director

### CRABMEAT PICKING AND PACKING DEVELOPMENTS

Prior to the adoption of the Regulations Governing the Preparing, Picking, and Packing of Crabmeat and Shrimp by the State Committee of Public Health on June 24, 1935, only one Alabama crabmeat dealer was operating his establishment in compliance with sensible provisions for sanitation. The bulk of the crabmeat produced in the State was picked in kitchens or on rear verandas, at homes without screens, or under arbors or in the shade of trees, in the open.

Although there are no records of any generalized outbreaks of intestinal upsets traceable to crabmeat, it is a fact that the demand for Alabama crabmeat was largely local; the meat did not keep well during shipment. The reason for this is obvious.

Crabmeat is prepared and packed in the following manner: The crabs are caught on set-lines and brought to the picking establishment, where they are boiled. They must be living when placed in the pot. The legs, claws, and backs are removed as soon as the boiled crabs are cool enough to handle, the lungs and digestive tract removed, and the remaining shell and flesh are washed. After a short period of draining, the flesh is picked from the shell divisions. This provides the "white meat." The claws are then cracked, and the "claw meat" removed from them. These two types of meat are then packed and weighed into one-pound cans.

It is quite clear that if the boiled crabmeat is subjected to ovipositing by flies during the picking operation or before being packed, or is not iced as quickly as possible and kept at a low temperature, it will soon enter the first stages of spoilage.

Following the adoption of the regulations late in June 1935, all individuals operating crabmeat pickeries started the construction of concrete floored and effectively screened picking rooms, and following the example of these, and noting the immediate improvement in keeping quality of crabmeat from these pickeries, and also the stiffening of prices, others also built pickeries. When the 1935-36 oyster season opened in September, seventeen pickers had obtained certificates of approval of their establishments.

The picking establishments usually consist of a picking room, in one end of which the crabs are "backed," cleaned, and washed. This room is provided with a drained concrete floor; the sidewalls are of concrete to a height of 12 to 15 inches, or are flashed with metal to this height; all openings are screened; picking tables are metal-covered; running water is piped into the room; handwashing facilities are provided; means for heating water for washing and sterilizing purposes—other than the crab-boiling pots or vats—are provided; the water supply is protected; safe human waste disposal is provided; vessels into which the crabmeat is picked are of non-corrodible metal or enamel-ware; facilities for cooling the meat and keeping it cold are provided; and, in a large majority of instances, the pickers wear white aprons or clean overalls, and white caps. These conditions are not exceptional, but are, rather, practically universal.

The peak of the present season was reached in late May, when approximately 3,000 pounds of crabmeat moved into Mobile daily, as compared with 1,000 pounds per week last season. Apparently as a result of improved quality, Alabama crabmeat is being shipped directly to Norfolk, Baltimore, Washington, Philadelphia, Chicago, and other northern and eastern cities. The wholesale price of crabmeat has held up remarkably well, and the coastal communities have enjoyed an excellent income from this old, but rejuvenated industry. At the present writing, July 1936,

thirty-three establishments hold certificates of approval.

This industry offers a striking example of the favorable effects of the establishment and compulsory maintenance of a high level of hygiene and sanitation. The result is not only a better and safer product, but a more stable economic structure.

C. A. A.

## BUREAU OF VITAL STATISTICS

L. V. Phelps, B. Sc., Director

### ACCIDENTAL DEATHS IN ALABAMA, 1935

In 1935, deaths from accidents and other violence in the State of Alabama numbered 1,768; the death rate, 63.0, exceeded that in either of the two preceding years. Deaths from accidents and other violence made this cause the seventh leading cause in 1933; in 1934, the sixth, and in 1935, the fifth. Heart disease (132.7 per 100,000) was the leading cause of death in 1935; pneumonia, all forms (86.4), second; nephritis (81.0), third; cerebral hemorrhage (72.5), fourth; accidents and other violence (63.0), fifth; cancer (62.7), sixth and tuberculosis, all forms (61.8), seventh.

Although accidental deaths represented only 6.2 per cent of deaths from all causes, it should be remembered that this is the greatest single cause of death which may be reduced most drastically by preventive measures.

For purposes of comparison, accidental deaths may be divided into four main groups as follows: home, industrial, motor vehicle and other public. Figures given in the following discussion refer to deaths resulting from accidents which actually occurred in Alabama.

Home accidents were responsible for 613 deaths; industrial, 192; motor vehicle, 599 and other public, 341. Although much has been said about the large number of motor vehicle deaths, it should be noted that in the State of Alabama accidents in the home resulted in a larger number of deaths in 1934 and 1935 than did motor vehicles.

Of the 613 deaths from accidents in the home (28.2 per cent) were caused by falls; 178 (29.0 per cent) by burns; 58 (9.5 per cent) by poisoning and 54 (8.8 per cent) by asphyxiation or suffocation.

One hundred and seventy (27.7 per cent)



of the deaths from accidents in the home were of children under 5 years; 116 (18.9 per cent) were (5-24) years; 142 (23.2 per cent) were (25-64) years and 184 (30.0 per cent) were 65 years or over.

Of the deaths of children under 5 years, 29.4 per cent were from burns; 28.2, asphyxiation and 13.5 per cent from poisoning. Of those (5-24) years, 33.6 per cent were from burns; 27.6 per cent, fire-arms; and 13.8 per cent, falls.

In the age group 25-64 years, 35.9 per cent were from burns; 18.3 per cent, falls; 14.8 per cent, poisoning. Of those 65 years and over, 63 per cent were from falls; 20.6 per cent from burns. Accidental deaths are most prevalent in the home during the winter months.

Motor vehicles were responsible for 599 accidental deaths. Approximately thirty-four per cent of these deaths involved pedestrians, 27.2 per cent were "non-collision operating" and 22.4 per cent involved other motor vehicles. Sixty per cent of all motor vehicle deaths were of persons 15-44 years. Deaths from this cause were most numerous in October.

It is of interest to analyze how these deaths occurred. The 203 deaths involving pedestrians were the result of 198 accidents. In 43 instances they were due to a collision with a pedestrian walking along the highway; 18 were caused by a pedestrian crossing the street at some point other than at an intersection. About an equal number occurred at an intersection. In 15 instances a child ran in front of the car.

There were 119 accidents resulting from a collision between two motor vehicles, resulting in 134 deaths. In 19 instances the accident occurred at an intersection; in 9 others a parked car was involved. In only 3 accidents was a drunken driver involved.

Thirteen collisions with trains resulted in 14 deaths. There were 11 collisions with bicycles and 13 with horse-drawn vehicles. Non-collision accidents numbered 148, resulting in 163 deaths. Twenty-eight of these accidents were caused by falls from trucks; 20 resulted from driving off the edge of the road. Fourteen of them were caused by overturning on a curve. Undoubtedly the majority of these accidents were the result of over speeding.

Thirty accidents were caused by collision with a fixed object. A relatively small

proportion of all accidents were caused by the driver being blinded by lights from an approaching car.

There were 192 deaths from industrial accidents. Agriculture accounted for approximately 20 per cent of these, as did mining and quarrying combined. Public utilities were responsible for 15 per cent, while logging and sawmills combined caused 11 per cent.

The group referred to as "other public" does not include deaths from motor vehicles. Of this group, railroad deaths lead the list, numbering 103. Most of these took place during the spring and summer months, no doubt reflecting the movement of vagrants. As might be expected, most of the 100 deaths from recreation occurred during the summer months.

During the past 3 years (1933-1935) slightly more than one-third of all accidental deaths can be classified according to type as "home" and one-third as "motor vehicle." The remaining third is comprised of "industrial" and "other public" accidents. If this distribution is studied according to color that of the white deaths according to type is very different from that of the colored. White deaths classified as "home" comprised 33 per cent of all white accidental deaths; colored 38 per cent. The proportion of "industrial" deaths was approximately the same, being 11.7 and 12.4 per cent, respectively. White "motor vehicle" deaths were 38 per cent; colored 26 per cent. Again, white deaths classified as "other public" were 18 per cent, colored 25 per cent.

The increase in the number of "home" deaths from accidental causes in 1935 compared with the figure in 1933 was 139 or 29.3 per cent. Compare this with the increase in "motor vehicle" deaths of 105 or 21.3 per cent over the same period. We have a great accident problem involving motor vehicles to contend with, but in Alabama we have an even greater one concerning the home. As our population ages, we must expect larger numbers will occur in the advanced age groups. Unless measures are taken to reduce accidents among the very old and the very young, our major accident problem will be in the home and not on the highway.

It is especially gratifying to note that those accidents classified as "industrial,"

should constitute only 12 per cent (1933-1935) of all accidental deaths. The success which has accompanied the fight to reduce accidents in industry can also be had in the reduction of other types of accidents if we shall apply ourselves with the same will to succeed.

### *Woman's Auxiliary*

Mrs. H. W. Gray  
State Publicity Chairman  
Mobile, Ala.

The eleventh annual convention of the Woman's Auxiliary to The Medical Association of the State of Alabama was held in Montgomery April 21st to 23rd. At this time Mrs. Lee W. Roe of Mobile was elevated to the presidency of the organization.

The Woman's Auxiliary to the Association is guided by an advisory council of three members appointed by the President of the State Medical Association, and in all our endeavors we have enjoyed the full cooperation of it.

As President, I have visited our county auxiliaries and found them enthusiastic about their work and having very interesting programs. We have had a state-wide program this year. Each auxiliary has been written every month outlining the work that we felt was advisable and explaining to them each phase of the state and national program. Our program chairman has been very active in this, and has cooperated with the national chairman in all programs. We had the minutes and reports of the last convention printed and these were sent out to all auxiliaries and we believe this has been a help in informing the counties of the work done.

Several of our auxiliaries have helped put on the seal sale for the Red Cross and one auxiliary put the whole seal sale on for their county very successfully. One auxiliary operated a booth and sold more seals than any other organization, winning a cash prize for so doing which they generously turned into the seal sale fund. Many open meetings have been held with excellent programs on health given by our doctors. Mobile County sponsors a preventorium; other auxiliaries aid their local hospitals by donating linens and helping with the entertainment of their nurses.

Calhoun County put on the graduating exercises and entertainment for the class finishing from their hospital.

At the request of the auxiliaries in convention in Mobile last spring and with the permission of the Advisory Council, the President sent out copies of the sterilization bill to the members so that they might inform themselves and support this bill in Alabama. We also sent out booklets and information dealing with social medicine to our auxiliaries recommending that they see that students debating on social medicine be given approved information.

Practically all of the members of the Woman's Auxiliary to the State Medical Association belong to other clubs, one club reporting that among their members were thirty officers in other clubs. They have been instrumental in putting on health programs in their various clubs. Realizing that we must not neglect the social part of our program, banquets, luncheons, teas and many clever and original parties have brought our membership closer together.

The President, Mrs. Jas. L. Jordan, represented the State in Atlantic City, where she had the honor of responding to the welcome address at the national convention, in Chicago at the National Board meeting where she served as chairman of revisions, and in St. Louis at the Southern Medical Convention where she served on the Memorial Committee.

We have tried this year to keep our doctors advised of our progress and to let them know that we are trying to serve them and are willing to do their bidding at all times. We were allotted two pages in our State Medical Journal and we have used this to distribute news items that would be of interest to the doctors' wives of the State. Alabama has a scholarship fund, the Lettie Daffin Perdue Fund, which is generously supported by each organized county. This scholarship is used by some doctor's son or daughter who would not otherwise have this advantage. Public health relations chairmen in each auxiliary do a good work. One new county has been organized this year.

We believe that Alabama is slowly but surely surging forward.

Respectfully submitted,  
Mrs. Jas. L. Jordan, President,  
April 1935 to April 1936.



# THE JOURNAL

OF

The Medical Association of The State of Alabama

Published Under the Auspices of the Board of Censors

Vol. 6, No. 3

Montgomery, Alabama

September 1936

## THE NEXT ACHIEVEMENT IN PUBLIC HEALTH\*

By  
THOS. PARRAN, JR., M. D.  
Surgeon General

United States Public Health Service  
Washington, D. C.

The efficiency of modern public health methods in bringing under control many of the acute communicable diseases is well known. Smallpox has been almost entirely eradicated; typhoid fever, particularly in urban districts, is rare; and diphtheria is rapidly being brought under control. With the solution of such important problems dealing with the more acute diseases, facilities will become available whereby it should be possible to intensify the public health program directed against the preventable chronic diseases. Syphilis is one of these diseases about which a great deal is known and the persistent effort of health officers will successfully bring this disease under control within one generation.

As a disease syphilis is insidious. It develops with manifestations which are more or less acute but transitory. Subsequent to these early signs the infection becomes latent and for many years the infected individual may not realize that he has a disease. During this period the syphilitic process slowly but steadily develops until after a decade or more the first definite symptoms of late syphilis are noted. Syphilitic heart disease or insanity are among the late manifestations and the damage is then irreparable.

### PREVALENCE

Syphilis is the most prevalent of the serious communicable diseases. The total

number of cases of syphilis in this country is unknown, although it has been appreciated for some time that the disease is not only widely prevalent but also that the prevalence varies in different parts of the country, depending to some extent upon social and economic conditions. The Public Health Service has made surveys of sources of treatment in order to determine the prevalence of syphilis. These surveys have been carried out in forty-nine representative communities in the urban and rural districts of the United States. Every physician or institution treating syphilis in these communities has been accounted for and the length of time that the patient remained under medical care has been ascertained. For the country as a whole, it has been learned that forty-three people among every 10,000 individuals are constantly under treatment for syphilis. From the figures which are available it has been possible to estimate that 518,000 new cases of early syphilis annually seek treatment. Only about one-half of these cases are reported by physicians and institutions to State Health Departments and to the Public Health Service.

Several years ago one of these surveys was conducted in Jefferson County, Alabama, which has within its limits the City of Birmingham. In this survey it was ascertained that 76 individuals per 10,000 population were constantly under treatment for syphilis. The incidence estimate for the City of Birmingham and Jefferson County is 9,200 new cases of syphilis per annum.

With the assistance of a large philanthropic organization an attempt was made to learn the number of cases of syphilis in a population group in six counties in as many Southern States. The serologic blood test was made use of in this study. The

\*Read before the Association in annual session, Montgomery, April 22, 1936.

work was limited entirely to a consideration of syphilis in the Negro. In Alabama the study was conducted in Macon County, and it was learned that 398 individuals per 1,000 Negro population had a positive blood test for syphilis. Since this test is extremely reliable in the absence of complicating acute disease this rate probably represents a minimum figure for the population under consideration. One of the serious aspects of the problem which was discovered was that less than 5% of these individuals had ever received treatment for their disease.

#### WHAT TREATMENT ACCOMPLISHES

From a public health standpoint the most important time to administer treatment for syphilis is within the first year of the infection. If treatment is properly administered and given regularly over a period of approximately 18 months, results which are practically tantamount to cure may be attained in about 75% of the cases. Those properly treated individuals who do not recover become symptomless and the vast majority have no further trouble in later life. The earlier the treatment is administered to cases of syphilis the better, and in the first two or three weeks of the disease satisfactory results are attained in 85% of the cases.

One of the important accomplishments of the treatment of early syphilis is the prevention of the occurrence of syphilis in a form which may be transmitted to others. If proper treatment is given, the contagious manifestations of the disease are immediately terminated and relapses of a contagious nature are prevented in all cases. From this particular point of view, therefore, the application of treatment is most important to the health and welfare of the community.

Unfortunately all citizens infected with syphilis do not seek treatment in the early stages. Many syphilitic individuals during middle age sustain such crippling manifestations as heart disease, disease of the central nervous system, and involvement of other internal organs. An important problem, therefore, is the recognition of syphilis after the early manifestations have disappeared. The most important procedure available for this purpose is the serologic blood test for syphilis. More than three-

fourths of all patients who have been infected have a positive serologic test in the latent and late stages of the disease. Thirty-five per cent of the cases of latent syphilis of less than four years' duration give no history of infection and 63% of the late latent cases of more than four years' duration give no history of their infection. The serologic blood test offers the only means for detecting the disease in such cases. Every patient should insist that this test be performed by his attending physician in order that proper treatment for syphilis may be instituted if necessary.

A problem of importance second only to the control of acquired syphilis is the prevention of the transmission of syphilis from the mother to the unborn child. If the mother is infected with latent syphilis and no treatment is given the disease is transmitted to her offspring in 83% of the cases. If, on the other hand, treatment consisting of at least ten doses each of one of the accepted arsenical drugs and bismuth preparations is administered beginning before the fifth month of pregnancy, the transmission of syphilis from the mother to the child can be prevented in 91% of the cases. Few opportunities to prevent disease are as effective as this in the whole realm of public health. Every pregnant woman should therefore report to her physician at the beginning of pregnancy for the general examination given such cases and she should insist that the physician include a blood test for syphilis as a part of the general examination.

#### DUTY OF THE HEALTH OFFICER AND THE PRACTICING PHYSICIAN

Because the control of syphilis is dependent upon the administration of proper treatment the physician in private practice occupies a unique position in the program. Without his cooperation and assistance no health officer can succeed. The physician in private practice should recognize the importance of syphilis as a public health problem and cooperate in the syphilis control program in every possible way. In return the health officer should respect the prerogatives of the physician.

An efficient health department should provide for the physician facilities for the early diagnosis of syphilis. These should include the provision of special microscop-



pic methods for the recognition of the germ of syphilis either by direct examination of the patient or by the examination of a specimen collected by the private physician and sent by mail to the public health laboratory. One or more serologic tests for syphilis should be made available to all physicians through health department laboratories. The efficiency of the performance of such tests should be rigidly controlled by the health department.

Subventiary assistance should be extended to clinics and hospitals in urban areas for the treatment of cases of syphilis in individuals unable to provide such treatment for themselves. In rural areas similar assistance should be extended to the physician in private practice so that the physician will not be compelled to assume the entire burden of extending treatment to those unable to pay. Early diagnosis and treatment must be available for every infected individual if the program is to succeed. The health officer and private physician must coordinate their activities to attain this end.

## THE HUMAN LARYNX\*

By  
FRANCIS E. LEJEUNE, M. D.  
New Orleans

Motion pictures of the human larynx showing various pathologic conditions and operative procedures promise to play an important phase in the teaching of laryngology. It is not always possible even in the larger clinics to have present at all times for teaching purposes the various types of laryngeal lesions. To have an accurate record of a large variety of pathologic cases for screen presentation is obviously advantageous not only for the teaching of the student but also for the benefit of the general practitioner into whose hands come most of these early cases seeking relief. Not only should the general practitioner be made to appreciate the importance of voice changes, but the public in general should be made to realize that persistent hoarseness is the danger signal of the larynx.

The discovery by Garcia in 1854 of mir-

ror laryngoscopy made it possible for all interested in laryngeal conditions to visualize by the indirect method what pathology existed within the borders of the larynx. The simplicity of this type of examination is such that every physician should not only be conversant with but also able to carry out this procedure and visualize the laryngeal structures. A head-mirror, a laryngeal mirror and a good source of illumination are the essentials for this type of examination.

The function of the larynx is primarily respiration and secondarily phonation. Respiration is essentially an automatic act under control of a center in the medulla. Phonation is entirely under control of the will. In both of these acts the vocal cords play a most important role—and on account of their location and prominence they are constantly exposed and subjected to all kinds of irritation and abuse. In order to phonate clearly and distinctly there must be an accurate approximation of the cords with uniform tension and synchronous vibration. Interference with any of these conditions must result in that symptom which we recognize as hoarseness. Hoarseness is the danger signal of the larynx. It is nature's first warning that some pathologic condition exists within the larynx or else closely related to it. Hoarseness frequently occurs as a complication of an ordinary cold subsiding spontaneously. As a result of this repeated experience mankind has learned to consider hoarseness as associated with a mild type of laryngitis which usually subsides spontaneously. Unfortunately this is not always true and for this reason we should endeavor to teach our patients that in any case of hoarseness lasting two weeks or more a physician should be consulted. The patient deserves and should have a thorough examination with a laryngeal mirror for it is only in this manner that we may hope to make an early diagnosis in cases of tuberculosis, syphilis and carcinoma. The importance of such an examination cannot be stressed too vigorously as many of these conditions in their early stages are amenable to treatment.

The teaching of medical subjects in our schools has been so developed that today every known method is used to advantage in an effort to impart that knowledge so essential to the younger student which will

\*Accompanied by a motion picture demonstration, this paper was presented to the Association in annual session, Montgomery, April 22, 1936.

enable him to "carry on" in the medical world. Among other aids used in teaching in various branches of medicine, we find photography playing an important part. Motion picture photography is destined to play a major role in the transmission of knowledge to the student. Clinical photography is now being used in all branches of medicine not only as a means of obtaining permanent records but also for teaching purposes. Laryngology, on account of its anatomic location, has suffered and we have had to content ourselves with diagrammatic sketches for our records and teaching. The desire for more accuracy in the recording of laryngeal pathology is largely responsible for my efforts at laryngeal photography.

The suspension laryngoscope devised by Killian and perfected by Lynch has made it possible for me to successfully photograph the larynx. The first requisite necessary in this type of work is an excellent exposure of the larynx—and this afternoon it is my privilege to present for your observation and study motion pictures of the human larynx. My first attempts were rather discouraging and while the results obtained at the present time lack the accurate focus and finesse of a professional film, still they convey to the observer a sufficiently accurate picture in which pathologic lesions are easily and clearly distinguishable. Recently I had occasion to present these pictures to a group of the dental profession. They marvelled at the fact that for years they had worked within three inches of the larynx and yet had never had occasion to see it.

Motion pictures offer the advantage of a deliberate study of a complicated mechanism. The rapidity of vibration of the vocal cords and the movements of the larynx and hypopharyngeal muscles are such that an ordinary examination by means of the laryngeal mirror gives but a fleeting view at best of the larynx. The normal anatomic structures are clearly projected making it possible to deliberately study the functions of the larynx as well as the anatomic landmarks. The physiology of the arytenoids and the part played in the protective mechanism of the laryngeal aperture is most interesting and instructive to observe. In one of the views presented this condition is well demonstrated. The epi-

glottis, under suspension, is held firmly and immobile. The gagging and coughing mechanism discloses the fact that each arytenoid approximates in the middle line, obliterating the intra-arytenoid notch and, with a rising motion, extends forward and upward, producing a sphincteric contraction over the glottis protecting from one-half to three-fourths of the laryngeal aperture. Were not the epiglottis held firmly in position it would extend downward and contribute to the protection of the uncovered portion of the larynx.

The larynx is heir to a number of pathologic conditions. Tuberculosis of the larynx, in my experience, has always been found to be secondary to a pulmonary lesion. While tuberculosis of the larynx is fairly common in some parts of the country, the records at the Eye, Ear, Nose and Throat Hospital in New Orleans show that such cases are seen here rather infrequently. Syphilis may affect any portion of the larynx and at times may so closely resemble other conditions that the differential diagnosis will tax the acumen of the best laryngologist. Benign tumors such as fibromas, angiomas, papilloma, vocal nodules, myxoma and the like, when found, present little difficulty in diagnosis. The problem concerned in these cases is one of surgical removal, accurately done with little sacrifice of normal tissue, particularly of the vocal cords, in order to preserve the normal voice as much as possible.

On account of the anatomic location of the larynx, its relative inaccessibility for surgical procedures, all growths or lesions formerly presented difficult problems when their removal was considered. The development of direct laryngoscopy converted a difficult procedure into one of comparative ease and accuracy. In my hands the Lynch suspension laryngoscope not only gives adequate exposure but allows the use of two-handed surgery in the removal of intralaryngeal growths and lesions. The exposure obtained is presented for visualization by means of motion pictures. The entire larynx is exposed to direct view; in addition, the mouth of the esophagus and the pyriform fossas are clearly seen. With such an exposure as that obtained by means of the suspension laryngoscope, intralaryngeal surgery is accomplished with greater ease.



Multiple papilloma of the larynx is the most common lesion found in children. These papilloma are benign in character and may occur in any portion of the larynx. They are malignant only in so far as they recur repeatedly and can be transplanted to any raw surface. The strong tendency to repeated recurrences after complete removal convert these apparently simple tumors into major problems. I have seen cases of multiple papilloma completely cured by the first removal of all papillomatous tissue, and the same type of cases treated in an identical manner have had recurrences over a long period of time. Why some cases clear up after only one removal and others persist after frequent removals remains today as one of the unsolved problems of otolaryngology. I have several cases that have been operated on repeatedly—one 38 times, another over ninety for the repeated removal of papilloma, and both continue to have recurrences. I can assure you that everything ever suggested has been used with indifferent results. In some few cases x-ray therapy has proved beneficial but as yet, as far as I know, there is no one remedy or procedure which offers a positive cure in these obstinate cases. I know of no condition occurring in the voice box, with the exception of stricture of the larynx, which requires more patience, perseverance and careful surgery than do these cases of multiple papilloma of the larynx.

Cancer in any part of the body is a serious and dreaded condition. Cancer of the larynx is likewise a serious and dreaded condition. However, cancer of the larynx offers a larger percentage of cures than cancer occurring in any other organ of the body provided an early diagnosis is made. There is no greater tragedy in medicine than that presented by a slowly increasing persistent hoarseness which eventually terminates as a hopeless case of cancer of the larynx. Cancer occurring in the larynx gives an earlier warning symptom than cancer occurring in any other organ of the body. Relatively speaking cancer of the larynx progresses slowly. The real tragedy is that in 90% of these cases an early diagnosis can be made and 80% of these cases can positively be cured.

Malignancies of the larynx are divided into two big groups, intrinsic and extrinsic.

The intrinsic group of carcinomas of the larynx predominates. These lesions are confined to one vocal cord, occasionally to the ventricle of Morgagni or to the ventricular band. The most common location for cancer of the larynx is the anterior third of the vocal cords. In their early inception these lesions are always confined to only one vocal cord. As extension occurs the other cord or other parts of the larynx may become involved. To the extrinsic group of cancers involving the larynx belong those lesions found on the rim of the larynx and extending into the surrounding tissue. Extrinsic cancer of the larynx is practically synonymous with cervical metastasis—hence the prognosis in the latter cases is exceedingly bad. The first symptom of cordal cancer is hoarseness. In other words, a cure for cancer of the larynx is entirely dependent upon an early diagnosis; and the predominating symptom presented by such cases is persistent hoarseness. Few besides laryngologists or voice teachers ever give much attention to slight voice changes. Frequently these slight persistent voice alterations are indeed very significant as they are the forerunners of hoarseness and may represent a very early manifestation of cancer of the vocal cords. The earlier a diagnosis is made in cancer of the larynx the better chance there is for a complete cure.

The general surgeon has, very properly and very wisely, made women conscious of the seriousness of lumps or tumors of the breast. The problem of the laryngologist today is to make the public at large realize the seriousness of persistent hoarseness, to urge upon that individual who has persistent hoarseness the absolute necessity of a laryngeal examination. This type of examination is indeed a simple procedure and consists of mirror examination of the laryngeal structures. A fairly accurate diagnosis can be made by indirect or mirror laryngoscopy. The accurate differentiation between tuberculosis, syphilis and cancer at times presents a formidable problem and whenever any doubt exists a biopsy should be performed. Before any type of radical surgery is attempted on the larynx I likewise believe that the diagnosis should be confirmed by biopsy.

I believe surgery should be resorted to in all cases of laryngeal lesions where sur-

gery is clearly indicated. Deep x-ray therapy is a most valuable adjunct which should be used in selected cases. Preoperative radiation has been of great value to me as well as the use of postoperative treatments. The uncertainty of the results to be obtained by means of radiation may be strongly in favor of surgical procedures. Radiation is the one great hope in those advanced cases where surgery is contraindicated. In some cases brilliant results have been obtained; in others complete failure has followed extended treatments.

It is amazing and regrettable to realize that in this day of modern medicine such a large percentage of laryngeal cases seek the advice of the laryngologist only after the lesion is so far advanced that little or nothing can be offered. Many years might have been added to these lives had an early diagnosis been made. It would seem, therefore, that the medical profession should strive to make the public "hoarseness conscious." If we are to be successful in our fight against carcinoma of the larynx, we must constantly bear in mind that persistent hoarseness is the danger signal of the larynx.

---

## MODERN MANAGEMENT OF ORGANIC LESIONS OF THE COLON AND RECTUM\*

By  
FRED W. RANKIN, M. D.  
Lexington, Ky.

The present day management of organic lesions of the lower gastro-intestinal tract has been advantaged enormously by adherence to many of the principles which have forwarded the modern treatment of hyperthyroidism, complicated gastric lesions, urinary obstruction, and other chronic ailments which experience has proved are not to be operated upon in the same fashion as other chronic lesions.

With the exception of that group of cases which presents itself as an acute intestinal obstruction, the rest of the organic lesions of the colon should, in the vast majority of instances, be allowed to have a preoperative preliminary preparatory period after an accurate diagnosis has been arrived at.

---

\*Read before the Association in annual session, Montgomery, Apr'l 21, 1936.

To make a diagnosis of cancer of the bowel or rectum for instance, and send the individual into the hospital for an operation the following day, is now recognized as not only an unfavorable procedure but one which distinctly detracts from his or her chances of ultimate successful operation.

When it is recognized that 68 per cent of all lesions of the large bowel, and a high percentage of lesions of the rectum and rectosigmoid which call for major surgery are due to malignancy; and, in addition, that the symptoms of the lesion have persisted over a long period of time before advice is sought, it becomes apparent that this group of cases is obviously one where the individual's resistance is uniformly lowered and consequently the operative mortality, unless every safeguard is taken, is bound to be higher than in benign lesions in individuals of the same age and condition.

Modern management, then, of diseases of the large intestine and rectum may be divided into four phases: First, the diagnostic period; second, the period of observation and preparation; third, the operative period; and fourth, the postoperative care.

### DIAGNOSIS

There are no pathognomonic signs in the early stages of organic lesions of the large bowel and rectum. The actual symptoms which call attention to the presence of a growth in the lower gastro-intestinal tract usually are secondary to changes in the growth itself, and, depending upon its location, are evidenced by disturbances in the physiologic equilibrium, obstructive phenomena, or, in the lower rectum, pain, tenesmus, frequency and urgency. In the early stages of a neoplastic growth of the colon in either the right or left segments, usually one finds that change in the bowel habit is among the first evidences of its presence. By this one means alternating periods of diarrhea and constipation which at first may be accompanied by excessive amounts of mucus in the stools, and occasionally by the presence of blood in or on the fecal matter.

In the stage where bowel irritability calls attention to an organic growth, usually metastases have not taken place, the ulceration in the mucous membrane of the bowel is small or absent, visible blood is not



found in or on the stools, and the diagnosis usually may be accurately made by roentgen-ray examination. The obvious corollary is that when there are bowel disturbances of the nature described, which extend over a period of some four to six weeks or longer, the individual should be surveyed carefully and with the advantage of all laboratory data, to determine accurately the presence or absence of a malignancy in the lower gastro-intestinal tract.

After secondary changes have taken place, after the growth has progressed to the point where it either partially encircles the lumen, or at least encroaches somewhat beyond its diameter, the symptomatology changes and in the right half of the colon secondary evidences of anemia, loss of weight, positive occult blood in the stool, and other such symptoms manifest themselves.

As one progresses around to the left half of the colon, the symptomatology at this stage revolves around the phenomena of obstruction in some of its stages. Blood in massive quantities, that is, bright red blood, usually is found secondary to cancers of the left colon or rectum, if this blood be due to a malignant growth. Occult blood in the stool frequently is found to come from cancers of the right colon which produce profound anemia without visible loss of blood. This anemia which is so constant a picture in at least one out of three cancers of the right colon often progresses to a point where the hemoglobin estimate is 25 to 30 per cent and the red blood count as low as two to two and one-half million. This is frequently confused on the first examination with a primary anemia, but can easily be differentiated from the latter by a study of the blood picture and by an x-ray of the colon.

Accidentally discovered tumors in the line of any segment of the colon should warn one of the possibility of a malignancy. The palpation of a mass in the region of the cecum, sigmoid, or transverse colon in a thin individual undergoing a routine physical examination, or found by the individual himself, is not an uncommon history in cancer of the colon, and approximately ten per cent of the whole are recognized thus on the accidental discovery of a hitherto unnoticed tumefaction.

The final diagnosis of cancer of the large

bowel is in the hands of the radiologist who, if cooperated with by the patient and allowed to visualize the colon under proper conditions, namely, emptiness and the cooperation of the patient in holding the enema, can accurately in the vast majority of instances not only locate the lesion to its proper segment, but interpret its pathological nature.

*Rectum*—The diagnosis of cancer of the rectum is so readily made if proper examination is indulged in that there is small necessity for its too frequently being overlooked. A digital examination will diagnose all cancers of the ampullary portion of the anal canal, and many of the rectosigmoid juncture, but a proctoscopic examination will diagnose every cancer of both the rectum and the rectosigmoid.

The symptoms of cancer of the rectum in the early stages likewise are vague and are dependent upon secondary changes in the tumor itself. The symptom which sends the most individuals for an examination is blood in the stool or on the stool, and this is an early symptom in approximately three-fourths of the cases. However, occasionally where the growth is small, does not ulcerate early, and there is no obstruction present, tenesmus and other symptoms appear even before blood is noticed on the stool.

Tenesmus and frequent defecation, and the feeling that the bowel is not completely emptied after defecation, usually are symptoms of cancer low in the rectum and are present in direct ratio to the nearness of the growth to the rectal sphincter. Occasionally, in rectosigmoid cancers, obstruction is the most prominent symptom even from the beginning, and this is readily understood when one recognizes that the sigmoid pours into the top of the rectum, running from left to right across the pelvis, and emptying usually at an angle in a fixed portion of bowel. There is no mesentery to the rectum and at this point it is fixed and slightly narrow, and not infrequently a growth impinges beyond the lumen in its early stages to such an extent that stenosis is a prominent factor.

X-ray studies in cancer of the rectum are not reliable, always are unnecessary, and frequently are misleading. For x-ray examination of the colon, let me again emphasize the necessity of cooperation with the

radiologist in order that the bowel may be clean, the patient cooperative, and the opaque medium administered per rectum. I cannot emphasize too highly either the uselessness or danger of attempting to make a diagnosis of an organic lesion of the colon by administering a heavy, opaque medium by mouth. If the lesion is present the colon is not satisfactorily filled and the diagnosis is not accurately made, and if the lesion is obstructing there is grave danger of producing an acute stenosis in the presence of the already hazardous condition of malignancy.

#### PRE-OPERATIVE PREPARATION

With the recognition of the advantages of preliminary preparatory measures, graded operative procedures, and controlled postoperative care, we have found that the routine preparation of patients with organic lesions of the bowel and rectum not acutely obstructed has allowed a satisfactory rehabilitation of the individual's disturbed physical equilibrium and usually a satisfactory decompression of a bowel which more often than not is chronically obstructed, perhaps only slightly, but nevertheless obstructed. Mild purgation and repeated irrigation of the bowel with hot saline usually accomplishes the cleansing of the colon. This is carried out over a period of five to seven days unless there is the distinct contraindication of increasing obstruction.

Years ago I felt that three days was an adequate preparatory period, but as I have gradually prepared these people over a longer period of time it seems to me that the advantages have been emphasized. During the decompressive period one rehabilitates these individuals by the maintenance of a diet high in calories and yet low in residue. Fluids are forced, particularly fruit juices, and blood transfusions are resorted to in any case which is anemic or which seems a higher than normal risk.

With an empty bowel, an increased carbohydrate reserve, and a blood restored to normal by transfusions, the preliminary period brings to the operating table a patient infinitely better able to undergo a formidable surgical procedure than formerly when operation was undertaken the day after the diagnosis was made.

#### OPERATIVE STAGE

The postulate that all cancers of the large bowel and rectum which are removable should be extirpated radically, with the excision of contiguous gland-bearing tissues, predicates a formidable surgical operation in dealing with these lesions. The operative procedures which have been evolved in the treatment of cancer of the rectum and colon have centered around decompression for palliation or as a stage of an extirpative maneuver plus subsequent resection, or a single stage extirpative maneuver.

One may not be too arbitrary in stating that any one type of operative procedure is applicable to all malignancies of any segment of the lower gastro-intestinal tract. Where decompression may not be accomplished by medical measures, cecostomy after the Gibson technic, using Hendon's technic of inserting a Pezzar catheter and witzelizing the bowel, is ideal. However, if the obstruction be marked, Horsley's idea of bringing out the cecum and side-tracking the large bowel completely is most satisfactory. Occasionally, colostomy is a more satisfactory decompressive measure, but that depends upon specific modifying influences.

Granting that exploration has shown the absence of metastases and a lack of fixation to the local growth which will permit its removal, one decides upon either a graded or single-stage maneuver, and will be influenced by his experience and judgment in such cases, as well as by the ability of the individual to undergo the whole operation at a single stage. My own feeling is that the graded maneuver has materially reduced the mortality following removal of cancer of the colon in any of its segments. Likewise, I feel that there is a definite use for graded maneuvers in dealing with cancer of the rectum, although here my present inclination is to adopt more frequently the one stage procedure of Miles.

*Right Colon*—Dyspepsia of a very indefinite and vague type frequently diagnosed as chronic cholecystitis or appendicitis, without investigation of the gastro-intestinal tract and biliary apparatus by radiography, is not infrequently an early symptom of colonic cancer, particularly of the right colon. Unfortunately, most of the accidentally discovered colonic cancers at



operation fall into this group which are being operated on under a wrong diagnosis without proper preliminary investigative steps having been taken. It is obvious that where there is any question of cholelithiasis, cholecystitis, or gastric lesion, an x-ray study of this portion of the gastro-intestinal tract and the biliary apparatus should be undertaken before exploration is done, and, if the examination is negative certainly that should suggest an investigation of the colon, particularly its right half.

In the right colon one has the choice between ileocolostomy and subsequent resection in two stages, or an ileocolostomy and resection in one stage. My preference has been for an aseptic type of end-to-side anastomosis between the terminal ileum and the transverse colon, utilizing the Rankin clamp to perform this maneuver, and four to six weeks later performing a clean removal of the right half of the colon. I distinctly prefer the end-to-side anastomosis because of the complete bypassing of the fecal current. This is less satisfactorily side-tracked by a lateral anastomosis, and, indeed, were I given to lateral anastomosis, I would prefer it as a part of a one-stage maneuver rather than because of the aforementioned reason.

The main advantage one derives from doing a two-stage maneuver is to reduce infection around the growth and in the pericolonc tissues by side-tracking the fecal current. For this reason I prefer to do all right sided cancers in one stage, and for this same reason, and in the full belief that the risk of peritonitis, which is the lethal factor in the majority of colon resection cases which come to autopsy, will be materially reduced by getting rid of this infection, I have not felt inclined to do a procedure of exteriorization on the right colon.

It seems logical that exteriorization procedures will not only fail to avoid the chances of infection which are well recognized as following primary resections of the colon, but, in addition, will leave a fistula of the small bowel to be dealt with subsequently, which of itself is an unpleasant procedure.

*Left Colon*—Here one has the choice between a number of procedures: First, obstructive resection; second, (a) cecostomy (b) resection and anastomosis; third, pri-

mary resection with primary anastomosis, either lateral or end-to-side; and fourth, exteriorization procedure with or without decompression.

I have felt a great reluctance to do any resection of the left colon and follow it by an immediate anastomosis of any type. There is no question that many times such a procedure may be successfully accomplished, but it is equally certain that its routine application will result in an elevation of the mortality rate because of the anatomic factors of uncertain, inconstant, and not-too-free blood supply to this segment of the bowel. While the blood supply is not scant in the large bowel, it is arranged in such a pattern that in order to do a widespread resection and removal of large areas of node-bearing tissues contiguous to the growth, it is extremely difficult, if not hazardous, to attempt to do a primary anastomosis preserving sufficient blood supply to the ends of the bowel to guard against necrosis at the suture line.

I have found the obstructive resection, with or without a decompressive cecostomy, the most satisfactory type of operative maneuver in the left colon where the mesentery of the bowel is sufficiently long to allow it to be done. It permits a widespread gland dissection and, in addition, allows one to remove sufficiently large portions of the bowel to guard against subsequent recurrences. In my own experience where it has been applied in properly selected cases, the mortality has been lowest and the outcome more satisfactory from every standpoint.

The exteriorization procedure, so frequently referred to Mikulicz but actually developed by Bloch, of Copenhagen, and modified by Paul, of Liverpool, in 1892, has a distinct field of usefulness and also very distinct limitations. It cannot be applied to growths in a segment of bowel with short mesentery or in obese people, or in large inflammatory growths which may not be mobilized without great difficulty. Neither is it applicable to growths where one has to ligate the blood supply to mobilize them because gangrene takes place in a high percentage of cases and results in peritoneal infection. The exteriorization procedure is particularly applicable, I think, in bad risks in whom the cancer is located in a mobile

segment of bowel where it may be quickly brought out on the abdominal wall and subsequently removed at another stage.

*Rectum*—The choice of procedures for extirpation of cancer of the rectum seems to have swung more recently toward the ideal one-stage combined abdomino-perineal resection of Miles; that is, when it is undertaken by the more experienced rectal surgeons. In my own service I find myself selecting more and more cases for this operation and with increasing experience and more careful attention to details both before, at, and after operation, I have not decreased the scope of operability but have decreased the mortality figure to below eight per cent. In the less sturdy risks I have modified Miles' procedure making a two-stage operation out of it, doing the colostomy and exploration at one stage, dividing the bowel, dropping it back, and subsequently completing the operation weeks later as a perineo-abdominal procedure. With Jones' operation I have had no personal experience, but it has a very distinct field of usefulness, and in his hands has yielded a high percentage of satisfactory end-results with a low mortality and a wide operability.

To these three types of operation, one must add, and use in the poorer risks, Mummery's operation of colostomy and posterior resection. While this operation does not give a widespread removal of glands in juxtaposition to the growth, and fails to take out the mesentery of the segment—which is a most important step—it does give five-year cures of around 34 per cent and may be used with a low mortality of about 5 per cent. Furthermore, it is a less difficult operation technically, and, consequently, may be used by a larger group of surgeons.

The operations which remove segments of the rectum, or which destroy the growth by various types of electrosurgery and other such maneuvers, are not extirpative procedures which at the present time seem likely to increase the offensive against rectal cancer.

#### POSTOPERATIVE CARE

Following operation we have found it satisfactory to carry out this regime: First, nothing by mouth; second, no proctoclysis or enemas; third, hypodermoclysis, 2,000

cc. of sodium chloride solution daily; fourth, transfusions, administration of ten per cent solution of dextrose in physiologic sodium chloride, 2,000 cc. daily; and fifth, morphine given liberally in doses sufficiently large to allay pain and control active peristalsis. In addition to this, strict oral hygiene by chewing gum and sucking lemons has, I think, been advantageous in preventing some of the parotitis which is a more frequent complication of colonic surgery than other abdominal surgery.

Liquids are administered slowly after the patient begins to pass flatus. Hypodermoclysis is continued as long as it seems essential to abstain from giving the patient fluids by mouth. Postoperatively all colon and rectal cases are given a blood transfusion of 500 cc. of citrated blood. That this has a beneficial effect and increases the smoothness and lessens the complications of the convalescence, I am certain.

In rectal cancer the packing is removed at the end of 60 to 70 hours and the colon irrigations instituted. Sitz baths are begun on the tenth day and the patient, before he is dismissed, is instructed in the care of the colostomy, which, by the way, is cared for without the use of any complicated apparatus but by a single elastic belt much like an abdominal supporter. In this belt is a removal rubber mat about six inches square. Attention to diet and the proper attitude toward the colostomy enormously increase the patient's comfort, and allow him to carry on his usual social and professional duties with little or no handicaps.

#### PROGNOSIS

Operative mortality, operability, and prognosis are inextricably bound closely together and the improvement during the past two decades in reducing the former and extending the scope of operability has resulted in an increase in satisfactory five-year cures following radical surgery for cancer of these organs.

Prognosis depends upon many factors, the most important of which probably is the intrinsic activity of the cancer cell. Accepting Broders' classification of malignancy, one finds that the higher grade growths, representing the most active cancers with the smallest number of differentiated cells, rapidly grow first through the muscularis and then invade the serosa and



tissues in the immediate vicinity of the growth, spreading thence by the lymphatics throughout the body.

The less malignant lesions, and fortunately cancers of the colon and rectum are usually Grades I or II, stay local a long time, metastasize to the regional lymphatics at a relatively late date, and consequently respond satisfactorily to extirpative procedures, even though they be undertaken nearly a year after the symptoms are known of.

Extrinsic influences modify the prognosis and the operability. They are, in a general way, age of the individual, his general resistance to invading disease, the presence or absence of coexisting debilitating lesions, and the direction and duration of the growth. In addition to these, local factors such as size of the growth, fixation and perforation represent complications which influence not only the removability of the growth but indirectly the prognosis.

In a general way, it may be said that cancer of the right half of the colon, for some reason not satisfactorily explained, is of better prognosis than cancer of the left half of the colon. A higher percentage of five-year cures and freedom from recurrence will be found among those cancers of the right half of the colon which are removed than among sigmoidal growths, although the glandular involvement is slightly higher in the right than in the left half. In a series of 187 cases of cancer of the right colon which I studied in 1933, 57.6 per cent lived more than five years. In 266 cases of cancer of the left colon studied at the same time, 47.7 per cent lived more than five years.

This is a paradox which is unexplained but nevertheless statistically provable. The size of the growth has little or nothing to do with the prognosis, provided it does not influence unfavorably its operability. Most surgeons will concur in the statement that occasionally they have been called upon to remove borderline cases of cancer of the right colon, made borderline because of the size and fixation of the growth to adjacent tissues; and, yet, pathological examination of the specimen revealed no glandular involvement and successful extirpation was rewarded by a long period of freedom from recurrence.

Duration of the growth unquestionably has some bearing on the outcome and it is easy to see that growths which project intralumenary usually are of lower grade intensity and therefore of better prognosis than the flat, ulcerating, rapidly extending growths which extend toward the serosa and usually are of higher grade malignancy and more prone to early metastases.

Age is recognized as having a distinct bearing on prognosis, particularly if the individual is youthful. In patients under thirty years of age the total good results following surgery are estimated as 50 per cent less, and the total poor ultimate results 20 per cent more than in a group of patients of all ages taken together. This reflects the statement that Broders' index of malignancy represents the most important prognostic factor; the malignant growths are more active and of a higher grade in younger individuals; and the outcome lethal in a much higher percentage of cases than the ordinary group.

Cancer of the rectum should be diagnosed earlier than cancer of the colon and probably is because of its accessibility, but the very fact that 46 per cent of these cancers show glandular metastasis has a distinct bearing on the prognosis.

Cancer of the rectum gives equally as good a prognosis as cancer of the colon, and sometimes better if the operability figures are increased and radical surgical procedures which remove the mesentery of the involved segment are indulged in. A comparison of the outcome from different types of operations is graphically illustrated by the figures of Miles whose operability of 30 per cent reports 79 per cent of five-year cures. Jones, of Boston, with an operability figure of 50 per cent reports 50 per cent five-year cures. Both of these men use the radical procedure for cancer of the rectum in contradistinction to the colostomy and posterior resection.

A series of 300 cases of cancer of the rectum operated upon by colostomy and posterior resection which I published in June of 1933 showed 38 per cent five-year cures and an operability of more than 50 per cent. From this comparison it seems difficult to escape the conclusion that radical surgery of the combined abdomino-perineal type, either in one or two stages, offers a better

chance of five-year cures to a larger number of patients.

Mortality figures, likewise, in the hands of experienced surgeons have been reduced by the measures described above until it is now recognized that cancer of the rectum and colon, under proper conditions, may be attacked surgically with as low or even lower operative mortality than cancer of the stomach. My own mortality figure for the radical combined abdomino-perineal resection in one or two stages in the last five years in 107 cases operated upon with eight deaths is 7.4 per cent.

### INGUINAL HERNIA\*

By  
R. W. WALDROP, M. D.  
Bessemer, Ala.

Employees' compensation laws have thrown into sharp focus the problem of the etiology of inguinal hernia. A great number of claims are being made on account of so-called traumatic hernia, and this has resulted in more critical deductions being drawn from the known anatomic facts.

#### VARIETIES

Inguinal hernias have been divided into the external and internal varieties. The external hernias are known as indirect or oblique. The latter term, which describes the oblique position taken by the hernia in its passage from the internal to the external ring, is the one most commonly used. The internal type of hernias, which pass between the deep epigastric artery and the rectus muscle, are generally known as direct hernias, because they come directly through the abdominal wall, internal to the internal abdominal ring.

The inguinal canal is an oblique opening parallel to the inner half of Poupart's ligament and a little above it. It is directed downward and inward and extends from the internal abdominal ring to the external or superficial abdominal ring. It is one and one-half inches long in the male and two inches long in the female—the greater length in the female being due to the wider separation of the iliac bones.

In larger hernias the obliquity of the canal diminishes and the two rings almost meet. Normally the opening of the internal abdominal ring is a little larger than an ordinary lead pencil, and lies midway between the anterior superior spine of the ilium and the spine of the pubis. This region is protected by very strong, interlaced, tightly bound muscles and fasciae and abounds in blood vessels and nerves. It is a strong and sensitive region of the body. Yet it has been stated on information derived from military, insurance and other statistics that one in every thirty males has an inguinal hernia.

#### ETIOLOGY

For the traumatic origin it is claimed that some form of extreme violence is capable of causing sudden breakdown or stretching of these natural barriers, allowing the gut or omentum or both to protrude. At one time, trauma, considered in a very general sense, was supposed to be the essential cause of hernia, but of late this idea has been practically abandoned. The prevailing view now is that hernia is of gradual development and that a preformed sac or pouch is almost invariably present.

In view of the structural formation of the parts concerned, it seems strange that a hernia could ever have been suspected of developing from a single trauma. I cannot conceive of an experienced surgeon who would maintain that the internal ring could, by any act of violence, be suddenly stretched enough to allow a portion of the abdominal contents to escape, and that these contents could then dilate the inguinal canal and perhaps traverse it and even reach the scrotum. Any such occurrence would lacerate the protruding parts and cause shock and probably hemorrhage. In performing the hernia operation, the surgeon often finds it difficult to introduce an ordinary grooved director, less than half the size of a lead pencil, along the already dilated inguinal canal from the external to the internal ring. If this is true in an anesthetized patient and with the parts already stretched by the passage of a hernia, how much more difficult must it be for a portion of the highly sensitive intestine or omentum to be forced through the passage in its normal, strongly fortified state!

Just here I would like to say a word

\*Read before the fifteenth annual meeting of the Alabama State Association of Railroad Surgeons, Birmingham, July 10, 1936.



about a current misconception as to the relation of an enlarged external ring to hernia. Such a ring is a result and not a cause of hernia. The mere fact that a man has an external inguinal ring that is a little larger than normal should not be considered as predisposing him to develop a hernia.

A hernia develops for two reasons: first, because there is a preformed sac; second, because the internal ring is too large. The condition of the external oblique aponeurosis has nothing whatever to do with the case. This point is not only true in theory; it can easily be checked by careful observation. I have checked a number of cases in which herniation had recently occurred, and I found that the external rings averaged about the same size as in normal cases. Enlargement of the external ring takes place only when the hernia pushes its way through into the scrotum, enlarging the ring in its passage.

The causes of inguinal hernia are usually considered under the two headings of congenital or predisposing, and acquired or exciting.

The congenital or predisposing elements in the etiology are structural and anatomic; the normal barriers are abnormal in formation or inadequate in strength or resistance. The existence of a marked hereditary tendency to hernia is a well recognized fact. Statistics show that about twenty-five per cent of patients give a history of hernia in parents or grandparents. MacReady states that a father with hernia tends to transmit a stronger predisposition to his sons than to his daughters, and that a mother with hernia transmits a more marked predisposition to her daughters than to her sons. I recently operated on a patient who stated that his father and paternal grandfather had had hernias on the same side on which he had his.

The acquired or exciting elements in the etiology of inguinal hernia can all be grouped under one essential factor of intra-abdominal strain or pressure. Thus, an exciting cause of inguinal hernia may be any occupation calling for effort in which the abdominal muscles are made to contract, so that the abdominal contents are forced downward and forward, as in bending, pushing or hauling. Bending and twisting movements, if persisted in, may

eventually produce a hernia in any individual lacking the full normal safeguards. Work that requires prolonged standing or a great deal of walking may also be causative of hernia under the same conditions.

Atonicity is a very important etiologic element. Hence, muscular relaxation due to pregnancy, tumor, ascites, visceral displacements or operations become important factors. When any of these is associated with prolonged or exhausting disease, or when there is the added element of general diminution of tonicity from advanced age, the likelihood of its acting as an exciting agent in the production of a hernia is naturally increased.

Trauma is the rarest of all causes and no single or isolated act of ordinary violence has ever produced a fully formed hernia. Bull and Coley investigated the alleged relation of injury to hernia in ten thousand cases at the Hospital For The Ruptured And Crippled in New York City and found a causal relationship in only two cases. One of these cases was that of a man gored by a bull, and the other caused by equally direct violence. Moorehead, of New York, states that he has never seen a genuine traumatic hernia due to non-penetrating injury and he knows of no well authenticated cases of acute hernia, even when there were associated injuries of such a nature as to inflict great damage on parts liable to be involved in a herniation. This inability to show any relationship between traumatic injury and hernia is very remarkable in view of the fact that nearly all patients give the surgeon a history of injury and look upon the latter as the cause.

If traumatic injury were so important in the causation of inguinal hernia as it is popularly supposed to be, we should expect to find direct hernia, in which the protrusion is directly into the inguinal canal without passing through the internal ring, more common than indirect hernia, but the opposite is true. Direct hernia occurs in only from three to five per cent of all inguinal hernia cases.

Manifestly, indirect violence can play no part in the production of inguinal hernia, since the impacting forces would be spent long before the inguinal region was reached. Falls on the back, buttocks, extremities and elsewhere were at one time supposed to jar the abdominal contents so that a loop

of gut or a piece of omentum would come down and enter the inguinal canal; but at the present time direct injury to the abdominal wall or to the region of the suspected hernia is the only kind of injury given any consideration as a possible etiologic factor. Of course, any penetrating wound that cuts the muscle or other retaining parts sufficiently is excepted in this discussion of the possibilities of injury being productive of hernia. A hernia resulting from a wound of this character would be similar to postoperative hernia in its causation.

#### SYMPTOMS

The symptoms of inguinal hernia may be stated as pain, swelling, tenderness and ecchymosis, but the symptoms vary with the different stages.

In the *first stage* an inguinal hernia is usually characterized by uneasiness in the epigastrium without actual pain, and often by a dragging sensation referred to one of the costal margins and pain in the back corresponding to the ninth and tenth ribs.

*Second Stage Or Incomplete Hernia*—The hernia has now passed the internal ring and is retained in the inguinal canal. At this stage, when it is known as a bubonocoele, the diagnosis of the condition may be difficult. The only symptoms may be restlessness and slight bulging on crying or coughing.

*Third Stage Or Complete Hernia*—The hernia has now passed the external ring, but may not enlarge immediately. The tendency is for it to descend finally into the scrotum, when it is known as a scrotal hernia. In a female the descent is into the labium majus and the hernia is known as a labial hernia. Scrotal hernias, as well as bubonocoeles, give rise to pain. Pain over the abdomen in the region of the umbilicus is common and is often associated with nausea that follows traction on the mesentery. If traction is continuous, vomiting will result. Sometimes there is pain referred to the back, especially with large hernias, in which pain of some sort is seldom absent.

Gastro-intestinal disturbances, nervousness, irritability and pain over the internal abdominal ring, which may be of a cutting or burning nature or a pricking sensation, may be among the first symptoms of hernia.

#### OBJECTIVE SIGNS

Beginning inguinal hernias that bulge only at the internal ring are more easily seen than felt. With the patient reclining in a good light, a slight bulging may be seen on the affected side when he coughs or strains, and definite impulse is obtained on palpation. Hernias that have entered the inguinal canal or passed beyond it are easily diagnosed, as a rule, by the presence of a tumor that gives an impulse on coughing when the patient is standing up. The impulse is the most important sign of hernia, and the examiner can detect it readily by placing his hand over the inguinal region or by passing his finger up the inguinal canal when the external ring is dilated.

#### TREATMENT

Treatment for practically all inguinal hernias is surgical, but exceptions should be made for children under two years of age who do not cry much and apparently have little trouble from the rupture; for patients of advanced age with high blood pressure and insufficient renal function, who wear a satisfactory truss; and for a few patients with direct inguinal hernia with poor regional musculature, who have little discomfort. When the latter type of patient is operated on, it is a good idea to follow the suggestions of Bloodgood and transplant the rectus muscle down to Poupart's ligament beneath the cord.

Inguinal hernias are believed by the laity and by many members of the medical profession to be all of the same type. This is an unfortunate impression. The development of the internal oblique muscle can be determined by examination through the external abdominal ring. If the development of this muscle is poor, the patient should be prepared for the possibility of a recurrence. If it is satisfactory, and the hernia is a simple one, he should be told that he has a little better than 99 chances out of 100 for a perfect cure.

It has been shown that muscle and fascia will not unite and that under ordinary suturing methods, after the suture material absorbs, only a thin band of scar tissue holds the internal oblique and Poupart's ligament together. For the past two years we have reenforced our hernias by means of living sutures taken from the fascia lata in the very large, recurrent or ventral her-



nias. We use the fascia stripper and stripping technic of Dr. Masson of the Mayo Clinic. In all other hernias, except in children, we use for reenforcement fascia sutures taken from the external oblique as described by McArthur. Gallie has shown that fascia sutures introduced under proper conditions live indefinitely, neither stretching nor contracting; after a time, they have the same structure as tendon.

For some time we have been using the Sistrunk incision in practically all our hernia operations. This is a combined oblique and transverse incision, and gives excellent exposure of the external abdominal ring. Very little retraction is necessary even in obese individuals. The incision is high, it does not extend down to the scrotum, and can be easily covered after operation. It seems to be less likely to become infected, because it does not extend down into the infectious area. It seems to heal more satisfactorily, also, than the usual oblique incision. The incision is made down to the fascia of the external oblique; all fat and tissue over the fascia of the external oblique is removed. A liberal incision through the external oblique is then made, extending up to where the fascia and muscle join. The fascia of the external oblique is separated from the internal oblique internally, and externally it is separated down so as to give a good exposure of the recurved part of Poupart's ligament.

The cord is now isolated and the sac identified. The sac is separated and pulled out. The structures of the cord are stripped away from the sac and abdominal peritoneum at the point where the sac comes off the abdominal peritoneum. An instrument of some kind is placed on the spot where the ligature is to be applied. The ligature should be of chromic catgut, and when tightened it should slip into the crush as the instrument is removed.

Animal sutures will absorb in from one to three weeks. Fascia sutures will not live if put under any tension before becoming organized in their new position. In order to relieve tension on fascia sutures until they become healed in their new position, we first suture fascia and muscle of the internal oblique and Poupart's ligament, as is done in the Bassini operation. This suture will last two or three weeks, giving

the fascia sutures time to become organized in their new position.

After this is done, a piece of fascia about three-eighths of an inch in width is taken from the edge of the external oblique fascia and carefully separated from above downward to its attachment on the pubis. It makes no difference whether it is taken from the upper or the lower layer of the fascia. The suture is threaded on a fascia needle and a continuous suture reenforces the catgut suture and is carried up to the internal ring.

The advantage of this suture is that one end is attached to the pubic bone and the other end can be attached at the end of the suture by a simple suture of plain catgut. If there seems to be a weakness above the cord, a piece of fascia may be stripped off the opposite side and used in the same manner as the one below, the attachment being at the upper end of the incision. We usually leave the cord outside the external oblique muscle.

The external oblique muscle is then sutured with chromic catgut and the skin incision closed with silkworm and dermal sutures.

In the majority of cases, the patient is allowed to get up after ten days. Patients with recurrent hernia, and some others, are kept in bed for fourteen days. Light work is allowed after from six to eight weeks, and heavy work in from three to six months.

If a hernia recurs within six months, either the operation was not sufficient or the patient over-exercised after operation. On the other hand, a recurrence after twelve months is more likely to represent the development of a new hernia, as the result of stretching in scar tissue or atrophy of the muscles. This may be due to the wearing of a truss after operation. Another possible cause is injury to the iliohypogastric nerve with resulting atrophy of the internal oblique muscle.

---

**Sterility**—Since about 40 to 50 per cent of all barren marriages can be definitely attributed to the male, it is important to study the husband as well as the wife. It is best to consider sterility as due to a sterile mating in contradistinction to either a sterile husband or wife.

The diagnosis and treatment of sterility can be simplified if one keeps constantly in mind the requisites for fertility.—*Glober, Texas State J. Med., Aug. '36.*

# THE JOURNAL

OF THE

Medical Association of the State of Alabama

*Editor-in-Chief*

FRED W. WILKERSON.....Montgomery

*Associate Editors*

M. Y. DABNEY.....Birmingham

W. D. PARTLOW.....Tuscaloosa

J. N. BAKER.....Montgomery

DOUGLAS L. CANNON.....Montgomery

Please send in promptly notice of change of address, giving both old and new; always state whether the change is temporary or permanent.

## Office of Publication

519 Dexter Avenue.....Montgomery, Ala.

Subscription Price.....\$3.00 Per Year

September 1936

## IS LEUKEMIA A FOOD DEFICIENCY DISEASE?

We derive valuable collateral information from a variety of sources concerning the etiology of diseases.

The economic level at which a disease becomes manifest has been of assistance to us. The large number of rheumatic fever cases occurring among the poorer classes in England led investigators to the conclusion that inadequate nutrition played some part in the incidence of this malady. The frequency with which pellagra appeared among the poorly nourished levels of society suggested long ago that the lack of proper food was related to this problem. Scurvy identified itself as a food deficiency disease the world over by its constant occurrence on sailing vessels where no other etiologic factor could be found.

The seasonal rise and fall of diseases has been informing. The manner in which pellagra and primary anemia occurred in the late winter and early spring was suggestive of some type of starvation sickness, the diseases appearing at the end of a period when fresh foods had been difficult to obtain. McLean,<sup>1</sup> in reporting a series of 258 cases of rheumatic fever occurring among children, noted that most of the patients were suffering from malnutrition.

1. McLean, C. C.: Early Manifestations of Rheumatic Infections in Young Children, *Ann. Int. Med.* 5: May 1932.

What was even more important in this valuable contribution, 58% of the total number of cases were seen during the months of January, February, March and April. In the great epidemic of beri-beri which ravaged the employees of the Madeira-Mamore' Railroad Company in North Brazil, from the years 1909 to 1912, the disease appeared with distinct seasonal variation, the peak occurring at the end of the dry season.

There is significance also in the geographic distribution of disease. Certain diseases, among them several of the better known type commonly ascribed to faulty nutritional states, are infrequent in tropical countries. Rheumatic fever, scurvy and pellagra fall into this class.

The symptom of nose bleed is found with great frequency in diseases due to food deficiencies. It appears early in scurvy, is met with in primary anemia and, as is well known, is often the first sign that a child is developing rheumatic fever. Some observers have stated that nose bleed has been found to antedate both the cardiac and joint symptoms by several years. It is a symptom which is rarely forgotten by the patient or the family. Its appearance in other diseases is of interest, although its significance here is not thoroughly understood. It is one of the early and dramatic symptoms of yellow fever. Its recurrence in typhoid fever thirty years ago we would likely ascribe, in the state of our present knowledge, to the prolonged period of enforced starvation, which in those days was the regimen for a sufferer from this disease. Be that as it may, nasal hemorrhages and intestinal hemorrhages also have decreased in frequency as our typhoid fever patients have been better nourished.

Nose bleed is a part of a pattern, dimly seen and difficult to follow, which links leukemia with the diseases due to faulty nutrition. It occurs early in leukemia and is very often one of the striking signs of this disease. There are other evidences which point to the nutritional origin of leukemia. Anyone who has seen cases of advanced scurvy must involuntarily compare the two diseases. They have many points in common: the bleeding from the mucous membranes, the prostration, and the involvement of the teeth and the alveolar processes. Another point which binds leukemia to



nutritional diseases is the fact that it occurs with great infrequency in tropical countries where most nutritional diseases are uncommon. The incidence of leukemia among the inhabitants of the Spanish Main is far lower than that encountered within the boundaries of the United States. Among the natives of the Island of Porto Rico it is so infrequent as to be a rarity. Several years ago a survey was made in this institution (Employees' Hospital, Fairfield, Alabama) as to hospital admissions for leukemia in the continental United States, certain of the Central American Republics and several of the West India Islands. This survey extended itself eventually to include something in excess of 5,000,000 hospital admissions. From the knowledge thus obtained, we were led to the conclusion that not only is leukemia a disease which occurs infrequently in tropical countries but it occurs infrequently also among masses of people whose diet has received skillful attention. We refer in this instance to the personnel of the United States Army and the United States Navy. Hospital admissions for leukemia in these two services compare very favorably so far as their infrequency is concerned with admissions for the same cause in tropical America. There is nothing astonishing in the idea that leukemia may be a nutritional disease. The outward appearance of the patient is no more unusual than that of the individual suffering from scurvy. The profound changes which take place in the blood stream are after all no more remarkable than the fulminating symptoms which accompany the death of a patient suffering from cardiac beri-beri. Unfortunately, we do not know if the incidence of leukemia rises and falls as the seasons change.

#### ECTOPIC PREGNANCY

Tenney<sup>1</sup> has recently published a study of one hundred and fifty cases of tubal pregnancy which have been seen at the Boston City Hospital during the past eight years.

"The physical findings in the entire series gave one hundred and forty or 93 per

cent whose chief complaint was lower abdominal pain usually worse on the side of the pregnancy but in many it was bilateral. Abdominal tenderness was present in one hundred and twenty-six or 84 per cent." Pelvic tenderness either localized or general was present in 92 per cent and a pelvic mass was made out in 60 per cent. And only 17.3 per cent of the patients were primiparas.

The sedimentation rate was ascertained in thirty-six cases. And the author holds that "the sedimentation rate is a valuable point in differential diagnosis of pelvic infection and hemorrhage from tubal pregnancy. Pelvic inflammation with symptoms sufficiently acute to be confused with ruptured tubal pregnancy usually shows marked lowering of the sedimentation rate." The Ascheim-Zondek test was done in eighteen cases and we are told that "it is also important to note that a negative Ascheim-Zondek test simply excludes a living tubal pregnancy and does not rule out a dead tubal pregnancy as the explanation for what symptoms may be present."

Among the outstanding signs and symptoms noted by Tenney were: "Seventy per cent had either missed a period or had a very scanty period. Eighty-two per cent gave a history of irregular bleeding. Seventy-one per cent were bleeding on admission. Some of the most acute cases were those that were not bleeding when seen. Three of the five deaths from hemorrhage were not staining on admission . . ."

"A high white blood count indicated recent and considerable internal hemorrhage."

The preoperative diagnosis was correct in 79 per cent of the cases, a high average indeed. Fifteen cases were diagnosed as pelvic inflammation, seven as ovarian cyst, three as appendicitis, three as fibroid uterus, and two as pelvic abscess with threatened miscarriage. In eight cases no definite preoperative diagnosis was recorded.

Ectopic pregnancy is a perennially difficult subject, especially for the general surgeons and practitioners who often times must work without benefit of the newer laboratory procedures which so frequently aid materially in a trying situation. More studies similar to this one by Tenney will do much to augment and clarify existing

1. Tenney, Benjamin, Jr.: A Clinical and Pathological Study of One Hundred and Fifty Cases of Tubal Pregnancy, *New England J. of Medicine*, 214: 773 (April 16) 1936.

knowledge of this subject. And, if practitioners will keep extra-uterine pregnancy more constantly in mind, they will be ena-

bled to bring their patients to operation more promptly with a consequent saving of lives.

## DEPARTMENT OF PUBLIC HEALTH

### BUREAU OF ADMINISTRATION

J. N. Baker, M. D.  
State Health Officer in Charge

#### SANITATION'S PLACE IN THE STATE HEALTH PROGRAM\*

Picture Alabama's typhoid history in the year 1917; compare it with today's record; and you have a conception, in part at least, of sanitation's place in the State health program. There are those in this audience, I am reasonably certain, who, in that year 1917, treated a number of the more than 2,600 patients who ran afoul of the disease—989 of whom died. I am equally sure there are just as many in the assembly who saw few if any cases of typhoid fever in 1935 (there were less than 500 cases in the entire State—an average of but one for every four physicians); and typhoid is only one of several maladies that find their path difficult when the principles of sanitary science are applied generally. There are, for example, malaria with its 200 fewer deaths in 1935 than in 1917; diarrhea and enteritis that dealt, less than a score of years ago, mortal blows to 1,560 children under two years of age; typhus fever, dengue fever; hookworm disease, paratyphoid and the various types of food poisoning—all of which yield to sanitation properly practiced.

Sanitation has been interpreted to mean the removal or neutralization of elements injurious to health. Originally, as set forth by Dr. William H. Park in his "Public Health and Hygiene," it was largely a matter of individual effort, which, in more populous communities, fell far short of the desired goal, since no one then lived nor now lives to himself alone. There followed, then, attempts by groups of individuals and organizations to introduce and maintain sanitary measures, a forward step and yet

still inadequate in that the beneficent power of government, even though sometimes a policeman, was not identified with the effort. A third phase in the progress of sanitation naturally followed; namely, an organized health department—municipal, county, state—came into control.

It was, as you are aware, as far back as 1871-72 that this third step in the onward march of sanitation, as a potent factor in the welfare of a commonwealth, was visualized for Alabama. Said Dr. Jerome Cochran to the Association in annual session, Huntsville, March 26-28, 1872: "I would have a general health law passed by the Legislature of the State, carefully prepared, so as not to stand in need of frequent revision or amendment. I would have this law to invest the Medical Association of the State with the functions, powers and responsibilities of a State Board of Health. . . . I would have the same act of the Legislature to invest each county medical society with the functions of a county board of health. . . . If my plan for the organization of the profession of the State should be adopted," continued Dr. Cochran, "as I firmly believe that it will, because I have confidence in the sound judgment and sober second thought of the profession, then I would have the Board of Censors of the Association to have special supervision of the sanitary interests of the State, and the Board of Censors of the several county societies to have sanitary jurisdiction of their several counties. . . . Until it suited the purposes of the local authorities of any county to cooperate with the Board of Censors of the county medical society, by the appropriation of means and powers for the practical application of sanitary science, the health functions of such Board of Censors would be largely nominal. But whenever," said Dr. Cochran, "in the judgment of the county or municipal authorities, circumstances should justify some direct practical attempts towards an improved sanitary condition, the machinery would be

\*Read before a meeting of the Southeastern Division of the Association, Wetumpka, June 25, 1936, by the State Health Officer's Assistant in Administration.



ready, and could be put into working order at once."

The plan was vitalized by Act of the Legislature approved February 19, 1875; and thus was there created in Alabama an agency for the removal or neutralization of elements injurious to health.

These elements, embraced in a program of sanitation of broadest scope, are many—some of which are not likely to command the attention of your Department of Health for another decade; for example, the abatement of the smoke nuisance or the elimination of odors, which, though offensive to the esthetic sense, hardly have the public health significance of typhus fever. On the other hand we find ourselves being rapidly propelled toward the problem of stream pollution and its solution; toward an answer to the hazards of improper housing; and in the direction of the broad field of industrial hygiene.

For the time being, however, thought cannot stray far from the sanitary tripod that supports Alabama's chief problems in the field of preventive medicine; viz., safe food, safe disposal of excreta and safe water supply. Too long, I fear, have we been unmindful of dangers inherent in improperly protected foodstuffs. Witness a recent occurrence in Birmingham, where 94 high school students had food poisoning after eating what appeared to be fresh cream puffs; and yet, which, on examination, showed in four specimens a bacterial content of 50 to 70 million per gram. Ninety-nine per cent of these organisms were *Staphylococcus aureus*. The report of the investigating inspector revealed that the bakery in which the cream puffs were produced was filthy. "Not only this, but certain conditions which prevailed were disgusting if not positively revolting. Three grossly insanitary toilets were repugnant and obnoxious. The building was not fly proof and flies were embracing these toilets and the bakery products as a regular rendezvous. There were no proper washing facilities for the 35 employees, and no hot running water on the premises. Clothing worn by the employees was filthy. Wash water had the consistency of pea soup. The greater part of the large and small equipment was inadequate, improvised, covered with filth, and in such a state

of disrepair as to render cleansing impossible even under the best of conditions. Raw materials were stored in open barrels and entirely unprotected from dust, rats and insects. The finished bakery products were subject to promiscuous handling and before being wrapped were often cooled in an open garage adjacent to the insanitary toilets." We are not surprised that there was illness; we wonder why a greater number did not have food poisoning.

Of foods none exceeds milk in importance. Moreover no other is as easily contaminated nor affords to bacteria a better culture medium. Constant vigilance, therefore, is the price of success in safeguarding this essential article of diet. Since 1916 there has been no outbreak of disease in Alabama traceable to a supervised milk supply. Nonetheless, consumers occasionally and dairymen often misunderstand the Department's efforts to protect this essential food element.

The second leg of the sanitary tripod is not a particularly romantic one. However, no one would gainsay measures promulgated and instituted to effect the safe disposal of excreta. Filth, flies, food, fever, funeral is more than an alliteration—the combination of factors, the one often leading to the other, is a tragedy less in evidence now than formerly. Even so it must be said that until body and other wastes are safely disposed of, with the consequent disappearance of hookworm disease, diarrhea, enteritis and typhoid fever, someone must be charged with criminal negligence. We are reminded of this, the authorship of which is not now known to me:

"If every public spirited citizen could be made to realize that liberty does not mean license to injure another for the sake of his own convenience; and if he would understand that human happiness is based on the precept that the greatest good is that which conveys the greatest benefit to the greatest number, he would break away from his shell of custom and selfish concern, and work for the general good of mankind. That is true liberty, true religion and true citizenship."

The duties of citizenship are nowhere so well marked as in the field of sanitation, the battle cry of which might well be "The Golden Rule." It is a source of gratification that civic righteousness, manifesting itself in an expression of willing cooperation, has been responsible in great measure

for the decline in the number of cases of and deaths from filth-borne diseases.

It is in connection with this part of the sanitation program, namely, excreta disposal, that the police power of government, as distasteful as its invocation is, is most often necessary. The common good must take precedence always over the rights of the individual, this being a principle of law no right thinking citizen would care to refute. "The prevention of disease and the conservation of health," said our Supreme Court, "is universally recognized as one of the most important duties of government, and in the construction of statutes enacted for such a purpose, under the police powers of the State, courts are agreed that great latitude should be allowed. . . ." "The right of the citizen to the enjoyment of his property and to exercise domain over it is not absolute," said the Court, "but is subject to the right of the State, when the public interest requires it." Willing acquiescence, however, should be the state of mind of all who would place first things first—physical vigor, fitness to live most and to serve best. There ought never to be occasion for the application of police power in a public health program.

Before a conclusion is reached, reference must be made, quite emphatically, to safe water supplies. If we may, for the instant, disregard a community's people as its superlative value, then it may be said that a safe water supply is a city's greatest asset. Its public health implications are too patent to require elaboration—explanation of the fact that in Alabama the State Department of Health has exclusive control over all public water supplies and waterworks insofar as purity, potability, wholesomeness and physical quality of the water are concerned.

The sanitation of public water supplies embraces, first, "inspection for the purpose of aiding in securing, for the users of such supplies, safe, satisfactory and palatable water for domestic consumption; and, second, a study of plans and specifications for approval and issuance of permits for new plants, additions, modifications or other changes proposed by existing plants." Two hundred eighty-six inspections of 234 supplies were made in 1935, covering the 40.5 per cent of the total population of the State served by public waterworks.

Finally, what of malaria and rodent control? In the last calendar year, drainage of mosquito breeding places was undertaken in forty-one counties, the estimated area drained being 4,362 acres, requiring 151.5 miles of new ditches, the reconditioning of 104 miles of existing ditches, 519,564 cubic yards of excavation and 1,609,421 man-hours of labor. It is estimated that these projects benefited some 234,726 people.

For rodent control but one argument need be offered. Rats proliferate with amazing rapidity—six to eight litters a year, ten young to the litter—each a potential carrier of typhus fever. It is not surprising that even in this year 1936 a Pied Piper should be needed. In his absence the importance of sanitation commands further consideration.

Has sanitation a place in the State health program? It is the very keystone of the arch, without which the structure would crumble from the weight of its own ineffectual endeavors.

D. L. C.

## BUREAU OF LABORATORIES

### CARRIERS\*

#### II. THE ROLE OF THE CARRIER IN THE SPREAD OF CERTAIN DISEASES

James G. McAlpine, Ph.D., Director

Zinsser and Bayne-Jones<sup>1</sup> have divided diseases into eight categories: (1) infections resulting from traumatic contact with infected material; (2) contact infections not necessarily traumatic; (3) infections acquired by the respiratory passages; (4) diseases of the intestinal tract; (5) diseases emanating from an animal host without the aid of an insect vector; (6) diseases conveyed from case to case by insects; (7) diseases in which an animal reservoir for insect infection exists; and (8) the infectious agent is hereditary in the insect, the disease resulting from its bite. They state "whether or not an infection can become epidemic or not is to a large extent dependent upon the type of parasitic adaptation by which transmission is governed."

\*Second in a series. The first appeared in the August issue.

1. Zinsser, H. and Bayne-Jones, S.: A Textbook of Bacteriology, New York, D. Appleton-Century Company, 1935.



The role of the human carrier is especially apparent in three of these categories; namely, in those diseases of the respiratory tract, in those of the intestinal tract and those spread directly from person to person by insects. This should not be construed to mean that other diseases are not disseminated by missed and recovered cases, but undoubtedly the carrier is most important in the development of epidemics in these three divisions. As far as Alabama is concerned, the important diseases spread by carriers are diphtheria, meningitis, scarlet fever, tuberculosis, possibly poliomyelitis, typhoid, the paratyphoid fevers, dysenteries, both amebic and bacillary, and malaria. In a series of papers of this scope it will be impossible to consider all of these, and only a few of the more prevalent ones will be discussed. Since infections of the intestinal tract are widespread in this State, they will be taken up first.

Typhoid fever, although it has shown a diminishing morbidity rate for the past decade or more, is still an important health problem in Alabama. Last year 482 cases were reported which is the smallest number since accurate records have been maintained. While a part of this decline is due to better sanitation, the widespread use of the prophylactic vaccine has undoubtedly contributed its share, and the people have been educated to demand it at regular intervals. Typhoid now occurs in this State as circumscribed outbreaks, not in the form of large epidemics as formerly. These are without doubt due to carriers because except in the most ignorant households—and there the attending physician, the County Health Officer and his nurse can instruct—the disposal of the excreta and discharges of the active case is properly done. These circumscribed outbreaks could easily reach epidemic proportions if prompt and drastic measures were not taken. It is the general opinion that this was the manner in which the great epidemics developed; first the carrier initiated a small outbreak, then the incubationary carriers and cases developing from it infected more and more in an ever-widening circle.

According to Rosenau<sup>2</sup> "about 33 per cent of cases continue to discharge typhoid

bacilli for three weeks after the onset of the disease, and about 11 per cent for eight to ten weeks; these are known as *convalescent carriers*. If the carrier state lasts a year it may be considered chronic. From 2 to 4 per cent, and sometimes more, of all cases continue to discharge typhoid bacilli indefinitely; these are *active chronic carriers*." Occasionally individuals who have no clinical history of the disease discharge the organism and these are known as *passive carriers*. There are more women than men who act as carriers. Park and Williams<sup>3</sup> state that "the great majority of carriers are women. The incidence of carriers increases with age."

Numerous investigations and estimations as to the number of carriers in the general population have been made. Gay<sup>4</sup> states that "if we assume that five per cent of all recovered cases become carriers and we know that over 150,000 recovered typhoid cases are still being produced each year in the United States, we have some 7,500 carriers added annually to a presumably cumulative list." Leach, Dehler and Havens,<sup>5</sup> working in Alabama, found that 10.3 per cent of 156 cases who had recovered from the disease within six months to two years were carriers. Bigelow and Anderson,<sup>6</sup> assuming that 2 per cent of all cases remain chronic carriers, computed that 1,100 carriers exist in Massachusetts alone. Furthermore, it is a moot question whether or not the widespread use of the prophylactic vaccine increases the carrier rate.

In a recent study of typhoid carriers, Anderson, Hamblin and Smith<sup>7</sup> have brought out some interesting points. They show that the carrier is most dangerous during the first 5 to 10 years of his carrier state because "most carriers infect or immunize

3. Park, W. H., and Williams, A. W.: Pathogenic Microorganisms, Philadelphia, Lea and Febiger, 1933.

4. Gay, T. P.: Typhoid Fever, New York, The MacMillan Company, 1918.

5. Leach, C. N., Dehler, S. A. and Havens, L. C.: The Prevalence of Carriers Among Recovered Cases of Typhoid Patients, Am. J. Pub. Health, 16: 391-392, 1926.

6. Bigelow, G. H. and Anderson, G. W.: Cure of Typhoid Carriers, J. A. M. A. 101: 348-352, 1933.

7. Anderson, G. W., Hamblin, A. H., and Smith, H. M.: Typhoid Carriers, Am. J. Pub. Health, 16: 396-405, No. 4, 1926.

2. Rosenau, M. J.: Preventive Medicine and Hygiene, New York, D. Appleton-Century Company, 1935.

their immediate environment within a few years (5 to 10), subsequent cases developing principally among the new susceptible material introduced into the environment." For that reason they state that "the incidence of residual (carrier-borne) typhoid fever in a given community is a function of the number of carriers produced during the preceding 5 to 10 years."

It is rather difficult to accurately estimate the relative importance of the carrier in the spread of typhoid fever. However, in the opinion of Zinsser and Bayne-Jones,<sup>1</sup> "it is pretty safe to say that the carrier is growing relatively more important, will in the future probably be the chief source of typhoid morbidity in well-protected communities, and is the only stumbling block which will probably prevent the complete eradication of the disease."

## BUREAU OF HYGIENE AND NURSING

B. F. Austin, M. D., Director

### AFTER CARE IN POLIOMYELITIS

Since very little is known regarding the transmission or prevention of acute anterior poliomyelitis, the physician must content himself with the proper care of the disease after it occurs and particularly after paralysis has involved one or more groups of muscles.

In the presence of a poliomyelitis epidemic in northern Alabama, with a high percentage of cases showing paralysis, it is of the utmost importance that we institute measures immediately which will minimize the ultimate degree of paralysis and prevent the horrible contracture deformities which we have all seen in the past.

Many text-books, in describing the treatment of poliomyelitis, fail to advise a sufficiently long period of rest for the paralyzed part stating that it should be continued as long as pain and hyperesthesia persist.

Dr. J. P. Leake of the United States Public Health Service, in his recent address before the physicians of northern Alabama at Decatur, strongly emphasized the importance of keeping the part in a neutral position to prevent stretching of the affected muscles, and continuing this rest for an unlimited period. He stated further that no harm would result from the prolonged rest

and that the ultimate return of function would be proportionately greater as a result of it. To prevent joint stiffness even in the acute stage, a limited amount of active motion is allowed the paralyzed part once daily within the limit of pain, care being taken not to overstretch the muscle.

The patient should lie flat on his back in bed, with his legs straight, feet at right angles to the legs and arms held in an abducted position.

To maintain the proper position, splints, casts or other improvised devices may be employed keeping in mind that the simpler devices render the patient more available for nursing care.

If there is marked involvement of the muscles of the lower extremity or of the trunk muscles which are used in maintaining an upright position, the patient should not be allowed on his feet for six months to a year or even longer period, depending upon his response to treatment. In most such instances hope of much improvement in these muscles vanishes when an upright position becomes frequent. The use of a wheel chair is to be definitely condemned. Recumbency is best for such cases while definite improvement continues. The sitting position is hard on the deltoids and abdominal muscles and it stretches the very important quadriceps and gluteals more seriously than does the upright position. Certain cases are so mild, of course, that recovery takes place no matter what is done, but undiscovered weaknesses, as of some abdominal fibers, may cause serious trouble. Eagerness of the patient for activity and of the parent for active treatment has done much harm in cases of poliomyelitis. This applies to vigorous massage as well as walking and exercising.

When the physician has completed his examination and knows the extent of paralysis in a patient, the next and final step should consist of muscle training by means of graduated exercises. The majority of patients who have had infantile paralysis still retain the ability to perform certain movements, perhaps with good strength, but lack the power to do other movements correctly, or with equal strength. For this reason, general exercises, which are good for normal persons, are not suited to the unequal muscles of these patients, and it is



necessary to choose exercises especially for the weaker ones.

Since the assistance of another person is necessary to insure that localized exercises are given correctly, the physician will have to instruct some member of the family in most cases. The only movements which are of benefit are those which are voluntary and unaccompanied by fatigue. If a muscle is apparently without any power, the patient should concentrate his attention on the attempt to accomplish the movement while it is performed passively. It often happens that weak muscles may be able to carry the limb through only part of its normal arc of motion. In such a case the limb should be carried by the physician passively through the remaining arc of motion normal to the joint and there should be no pause after the muscle has ceased acting; but the assistance should come in time to make one smooth movement throughout the whole arc, in order that there may be no interruption in the patient's mental effort.

It is usually enough to let the patient go through all his exercises once a day six days in a week. The one day of rest prevents him from becoming stale. Each exercise may be performed ten or twelve times in succession in slow enough rhythm to allow for complete recovery between efforts.

Space does not permit a description of the specific exercises indicated in every type of paralysis. If further information be desired on the after-care of the poliomyelitic patient the reader is referred to the pamphlet published by the American Medical Association entitled "Practical Suggestions on Poliomyelitis," or to Robert W. Lovett's book entitled "The Treatment of Infantile Paralysis." J. J. R.

BUREAU OF PREVENTABLE  
DISEASES

D. G. Gill, M. D., Director

PROGRESS REPORT ON POLIOMYELITIS  
EPIDEMIC

In the August issue of The Journal there appeared a discussion of the poliomyelitis epidemic in North Alabama and the steps that were being taken to combat its spread.

It is now possible to add to the previous record a report of the progress of this outbreak through the month of August. Our revised figures show that prior to June

there were 10 cases reported, 14 reported in June, 201 in July and 87 in August. From these it is apparent that the peak of the epidemic was reached during July and that a gradual decline has taken place. This decrease has been particularly marked in the counties that were first affected; namely, Morgan, Limestone, Franklin and Colbert. There has been some spread of the disease, but not in epidemic proportions except in Cullman and Jefferson Counties. Lauderdale County has continued its high incidence. The number of cases reported from the various counties is shown in the following table:

| County     | June | July | August |
|------------|------|------|--------|
| Baldwin    | 0    | 1    | 0      |
| Bibb       | 0    | 1    | 0      |
| Blount     | 0    | 4    | 4      |
| Bullock    | 0    | 1    | 0      |
| Calhoun    | 0    | 1    | 1      |
| Cherokee   | 0    | 2    | 0      |
| Chilton    | 0    | 0    | 2      |
| Clay       | 0    | 1    | 0      |
| Colbert    | 0    | 24   | 3      |
| Coosa      | 0    | 1    | 0      |
| Cullman    | 0    | 6    | 10     |
| DeKalb     | 0    | 1    | 0      |
| Elmore     | 0    | 1    | 1      |
| Escambia   | 0    | 2    | 0      |
| Etowah     | 0    | 1    | 1      |
| Fayette    | 0    | 1    | 0      |
| Franklin   | 0    | 16   | 2      |
| Geneva     | 0    | 1    | 0      |
| Jefferson  | 1    | 37   | 25     |
| Lauderdale | 0    | 29   | 16     |
| Lawrence   | 1    | 7    | 4      |
| Limestone  | 4    | 10   | 1      |
| Madison    | 1    | 6    | 2      |
| Marengo    | 0    | 2    | 2      |
| Mobile     | 0    | 0    | 2      |
| Montgomery | 0    | 0    | 1      |
| Morgan     | 6    | 27   | 3      |
| Pickens    | 0    | 1    | 0      |
| Pike       | 0    | 0    | 1      |
| Randolph   | 0    | 1    | 0      |
| St. Clair  | 0    | 2    | 0      |
| Shelby     | 0    | 3    | 0      |
| Talladega  | 0    | 1    | 0      |
| Talapoosa  | 0    | 0    | 2      |
| Tuscaloosa | 0    | 2    | 0      |
| Walker     | 0    | 5    | 0      |
| Winston    | 1    | 2    | 1      |
| Total      | 14   | 201  | 87     |

MALARIAL THERAPY IN PARESIS

Malarial therapy in paresis is definitely in the field of specialists. The minimum requirement, as outlined by Stokes for proper malarial therapy, is an organized hospital service in which the chief makes

daily rounds and personally sees the patients under treatment. A successful malarial service cannot be conducted under the supervision of internes.

The *Plasmodium vivax*, the organism responsible for tertian malaria, is the one employed in the treatment of neurosyphilis. When mosquito-borne organisms are used, the sexual phase of the life cycle is introduced into the situation, whereas if the infection is transmitted by an old strain that has passed exclusively from man to man by inoculation, there is a tendency for the sexual phase to die out, leaving a pure asexual strain which produces a milder and more uniform course and less tendency to relapse after quinine.

Malarial blood for inoculation purposes may be transferred from one patient to another by the addition of an equal quantity of 0.5% sodium citrate solution. At room temperature, virulence is retained for from twelve to twenty-four hours. With defibrination and refrigeration in Ringer's solution diluted with donor's inactivated serum, sixty to sixty-two hours is the limit. Subcutaneous or intramuscular inoculation is preferred by many authorities. One to five cc. of blood are recommended by this routine. For intravenous inoculation 0.5 to 2 cc. of blood are used. For the subcutaneous inoculation 38 to 46 per cent showed their first clear-cut temperature rise within ten days; 44 to 46 per cent in eleven to twenty days, and 8 to 10 per cent in from twenty-one to thirty days. Plasmodia tend to appear in the blood about the time of the first actual malarial attack. About 8 to 10 chills are recommended.

Many authorities feel that this type of therapy should be followed with a course of tryparsamide. The drug is administered intravenously. The dose is 1 to 5 grams, once a week, dissolved (average dose 3 gms.) in 5 to 10 cc. of sterile distilled water.

## BUREAU OF SANITATION

G. H. Hazlehurst, C. E., M. C. E., Director

### ENDEMIC TYPHUS FEVER

#### ITS CAUSE AND CONTROL

From January 1 to August 1, 1936, there were reported to the Bureau of Preventable Diseases 150 cases of endemic typhus fever. In the same period four deaths were recorded with typhus fever as the cause.

Endemic typhus fever is a disease primarily of rats, secondarily of man, and is transmitted by the rat fleas, *Xenopsylla cheopis* and *Ceratophyllus fasciatus*. Recently, investigators have convicted other fleas of transmitting this disease, among which are the *Ctenocephalus felis* (cat flea) and *Ceratophyllus acutus* (squirrel flea). The virus of endemic typhus fever has been recovered from rats caught on premises where there had been known cases of the disease, and one instance is recorded where multiple cases had occurred in one household where the investigator found the family cat to be the reservoir. The maximum incidence of the disease is in late summer and early fall. Its recent prevalence and increasing incidence are causing more attention to be directed toward it. The period of incubation is from 5 to 12 days.

The endemic typhus fever area in Alabama extends from Montgomery County southeast to Houston County and southwest to Mobile County. Only 13 cases reported during 1936 were in counties north of Montgomery.

The heavy rat infestation in South Alabama is due to the favorable climatic conditions and abnormally abundant food supply. This region produces food in the form of peanuts, beans, pecans, cottonseed and other products, a large portion of which is stored for relatively long periods. Most of the storage places are not built in such a way as to offer any barrier to rat invasion or harborage.

The extent of rat infestation of a community, the type of building construction and the sanitary education of the inhabitants have a decided bearing on the prevalence of the disease and the difficulty of eradication. Public health authorities recognize endemic typhus fever as one of the major health problems in Alabama. With the limited funds available for public health work, the only approach to a solution of the problem is to train sanitation officers in the latest scientific methods of rodent control, including rat proofing, trapping and poisoning.

During the year it is the intention of the State Health Department to train all sanitation officers within the typhus area in the latest methods of rodent control. When these men are thoroughly trained there will



be within the organization a force capable of conveying intelligently to the laity the dangers of rat-borne diseases, supervising rat proof construction, properly directing extermination campaigns during an outbreak, and advising on any phase of the work. A course of lectures and practical work was given to a class of six sanitation officers at Brundidge, Alabama, during the month of August.

In conclusion endemic typhus fever can be controlled by:

1. Careful diagnosing and prompt reporting of every case by physicians.
2. Education of the people through schools, civic clubs, and the press as to the dangers of rat-borne diseases.
3. Continual warfare against the rat by cutting off his food supply and destroying nesting places.
4. Rat proofing all food-handling establishments and proper disposal of garbage in municipalities.

Rat proofing tends to limit the incidence of rat infection and renders other active suppression measures more certain.

A. J. P.

## BUREAU OF VITAL STATISTICS

Leonard V. Phelps, B.Sc., Director

### DEATHS FROM LIGHTNING IN THE UNITED STATES 1927-1933

The recent high frequency of thunder-showers in Montgomery, Alabama, suggested this article. A paper on the same subject has just been published by the Metropolitan Life Insurance Company in its Statistical Bulletin.<sup>1</sup>

Although the total number of deaths from lightning is comparatively small, this cause of death should be of particular interest to residents of Alabama. During the seven-year period, 1927-1933, the annual number of deaths from lightning in this State averaged 26, being exceeded only in Georgia (30). When deaths are stated in terms of population expressed in millions, New Mexico (14.3) and Arizona (14.0) lead the list, with Alabama ranking fifth. It will be seen, in referring to the map (Fig.

1) showing the distribution of mortality rates by states,<sup>2</sup> that mortality from this cause is highest in the Southeastern States and in those states extending from Montana directly south to Mexico.

Reference to the map (Fig. 2) showing the density of population by states shows that there is no correlation between density of population and mortality from lightning. Undoubtedly, the two leading factors are climate and habits of the people. There is a striking relationship, however, between the geographic frequency of thunder-showers and mortality from this cause. During the winter months (November - February), thunder-showers<sup>3</sup> reach their peak in the Southeastern States, with the highest frequency centering approximately in the intersection of Arkansas, Louisiana and Mississippi. Relatively few such storms are recorded in the Northern or Western States during this period. As summer approaches, the center of maximum frequency becomes less pronounced. The distribution of thunder-showers becomes more widespread and the center of maximum frequency moves in two directions, northwest and southeast, with a maximum frequency centering in Arizona and Florida. This is especially noticeable during the summer months (July-September).

It is not known why one center of maximum frequency during the summer should be at sea level in Florida and the other in Arizona, 7,000 feet above sea level.

As winter approaches, the two high frequency centers converge in the northern part of Arkansas and finally move south to the junction of Arkansas, Louisiana and Mississippi.

Concerning living conditions, it is known that in those states located in the northeastern part of the United States the density of population is noticeably greatest and industrial pursuits predominate; in the Southern and Western States, agriculture. In industry, workers are housed in buildings and the likelihood of their being struck by lightning is much less than that of the

1. Deaths from Lightning. Bull. Metropolitan Life Ins. Co., 17: 2 (June) 1936.

2. The Distribution of Thunder Storms in the United States, 1904-1933, W. H. Alexander, Monthly Weather Review, 63: 157-158 (May) 1935.

3. Georgia, 1928-1933; Nevada, 1930-33; New Mexico, 1929-33; Oklahoma, 1928-33; South Dakota, 1930-33; Texas, 1933 only.

farmer or those living on the plains, who are out in the fields and open spaces. Buildings serve to discharge accumulating elec-

tricity constantly during a thunder-shower, thereby protecting the individuals in or around them.

NUMBER OF DEATHS FROM LIGHTNING, MEAN ANNUAL DEATH RATES\* AND DENSITY OF POPULATION, ACCORDING TO STATES, 1924-1933

|                      |      |      |      |      |      |      |      |      |      |      | Mean No.<br>Deaths | Mean<br>Death<br>Rate per<br>Mi lion | Density†<br>of Pop.<br>per Sq. Mi. |
|----------------------|------|------|------|------|------|------|------|------|------|------|--------------------|--------------------------------------|------------------------------------|
|                      | 1924 | 1925 | 1926 | 1927 | 1928 | 1929 | 1930 | 1931 | 1932 | 1933 | 1927-33            | 1927-33                              | —1930                              |
| Continental U. S.    | 334  | 442  | 364  | 352  | 428  | 392  | 359  | 444  | 362  | 372  | 387                | 3.2                                  | 41.3                               |
| Alabama              |      | 31   | 17   | 29   | 27   | 32   | 28   | 27   | 20   | 18   | 26                 | 9.8                                  | 51.6                               |
| Arizona              |      |      | 9    | 7    | 6    | 7    | 6    | 4    | 6    | 3    | 6                  | 13.8                                 | 3.8                                |
| Arkansas             |      |      |      | 13   | 15   | 13   | 6    | 23   | 9    | 12   | 13                 | 7.0                                  | 35.3                               |
| California           | 0    | 1    | 1    | 1    | 0    | 0    | 0    | 0    | 1    | 1    | 0.42               | .07                                  | 36.5                               |
| Colorado             | 9    | 15   | 14   | 5    | 13   | 9    | 8    | 11   | 10   | 5    | 9                  | 8.7                                  | 10.0                               |
| Connecticut          | 4    | 3    | 0    | 3    | 3    | 2    | 4    | 1    | 2    | 1    | 2                  | 1.2                                  | 333.4                              |
| Delaware             | 0    | 0    | 0    | 0    | 0    | 1    | 0    | 0    | 0    | 1    | 0.28               | 1.2                                  | 121.3                              |
| District of Columbia | 0    | 0    | 0    | 0    | 0    | 0    | 1    | 0    | 1    | 1    | 0.42               | 0.1                                  | 7852.7                             |
| Florida              | 15   | 11   | 9    | 9    | 22   | 14   | 16   | 7    | 11   | 14   | 13                 | 8.8                                  | 26.8                               |
| Georgia              | 27   |      |      |      | 35   | 32   | 26   | 28   | 33   | 27   | 30                 | 10.3                                 | 49.5                               |
| Idaho                | 1    | 7    | 3    | 0    | 5    | 3    | 3    | 3    | 3    | 1    | 2                  | 4.5                                  | 5.3                                |
| Illinois             | 19   | 23   | 18   | 19   | 17   | 18   | 15   | 13   | 18   | 7    | 15                 | 2.0                                  | 136.2                              |
| Indiana              | 16   | 13   | 11   | 8    | 9    | 8    | 6    | 22   | 8    | 8    | 10                 | 3.1                                  | 89.8                               |
| Iowa                 | 14   | 8    | 5    | 8    | 9    | 11   | 5    | 5    | 11   | 2    | 7                  | 2.8                                  | 44.5                               |
| Kansas               | 26   | 11   | 9    | 10   | 11   | 8    | 12   | 9    | 10   | 7    | 10                 | 5.3                                  | 23.0                               |
| Kentucky             | 13   | 19   | 15   | 10   | 13   | 13   | 3    | 11   | 12   | 5    | 10                 | 3.8                                  | 65.1                               |
| Louisiana            | 3    | 16   | 11   | 12   | 14   | 14   | 24   | 18   | 13   | 16   | 16                 | 7.6                                  | 46.3                               |
| Maine                | 1    | 1    | 1    | 2    | 1    | 0    | 3    | 0    | 1    | 6    | 2                  | 2.5                                  | 26.7                               |
| Maryland             | 5    | 3    | 0    | 4    | 1    | 4    | 4    | 9    | 0    | 1    | 3                  | 1.8                                  | 164.1                              |
| Massachusetts        | 2    | 4    | 3    | 10   | 1    | 3    | 7    | 4    | 5    | 7    | 5                  | 1.2                                  | 528.6                              |
| Michigan             | 5    | 10   | 6    | 13   | 10   | 6    | 5    | 13   | 4    | 14   | 9                  | 1.8                                  | 84.2                               |
| Minnesota            | 13   | 4    | 7    | 16   | 10   | 3    | 4    | 4    | 4    | 6    | 7                  | 2.7                                  | 31.7                               |
| Mississippi          | 18   | 36   | 27   | 18   | 11   | 19   | 26   | 26   | 26   | 24   | 21                 | 10.4                                 | 43.4                               |
| Missouri             | 25   | 23   | 24   | 22   | 16   | 12   | 12   | 15   | 17   | 11   | 15                 | 4.1                                  | 52.8                               |
| Montana              | 2    | 11   | 5    | 6    | 6    | 2    | 6    | 3    | 4    | 5    | 4                  | 7.4                                  | 3.7                                |
| Nebraska             | 5    | 3    | 9    | 9    | 6    | 6    | 6    | 3    | 6    | 4    | 6                  | 4.4                                  | 17.9                               |
| Nevada               |      |      |      |      |      |      | 1    | 0    | 0    | 1    | 0.28               | 3.1                                  | 0.8                                |
| New Hampshire        | 0    | 0    | 2    | 2    | 3    | 2    | 2    | 1    | 1    | 0    | 2                  | 4.3                                  | 51.5                               |
| New Jersey           | 1    | 3    | 7    | 2    | 10   | 4    | 4    | 6    | 5    | 4    | 5                  | 1.2                                  | 537.8                              |
| New Mexico           |      |      |      |      |      | 7    | 8    | 3    | 4    | 9    | 6                  | 14.2                                 | 3.5                                |
| New York             | 15   | 15   | 10   | 8    | 12   | 9    | 12   | 11   | 9    | 14   | 11                 | 0.9                                  | 264.2                              |
| North Carolina       | 15   | 30   | 18   | 20   | 23   | 18   | 17   | 36   | 6    | 16   | 19                 | 6.0                                  | 65.0                               |
| North Dakota         | 7    | 2    | 2    | 5    | 4    | 4    | 3    | 1    | 5    | 2    | 3                  | 4.4                                  | 9.7                                |
| Ohio                 | 11   | 21   | 26   | 7    | 10   | 16   | 7    | 18   | 13   | 18   | 13                 | 2.0                                  | 163.1                              |
| Oklahoma             |      |      |      |      | 22   | 5    | 9    | 9    | 11   | 8    | 11                 | 4.6                                  | 34.5                               |
| Oregon               | 1    | 3    | 3    | 0    | 1    | 1    | 2    | 1    | 0    | 1    | 1                  | 1.0                                  | 10.0                               |
| Pennsylvania         | 8    | 22   | 20   | 11   | 15   | 18   | 11   | 14   | 22   | 24   | 16                 | 1.7                                  | 214.8                              |
| Rhode Island         | 1    | 2    | 0    | 0    | 0    | 1    | 0    | 0    | 0    | 0    | 0.14               | 0.2                                  | 644.3                              |
| South Carolina       | 13   | 32   | 11   | 19   | 21   | 11   | 16   | 14   | 12   | 15   | 15                 | 8.6                                  | 57.0                               |
| South Dakota         |      |      |      |      |      |      | 4    | 5    | 3    | 2    | 4                  | 5.8                                  | 9.0                                |
| Tennessee            | 11   | 13   | 20   | 17   | 18   | 18   | 7    | 20   | 8    | 9    | 14                 | 5.3                                  | 62.8                               |
| Texas                |      |      |      |      |      |      |      |      |      | 24   | 24                 | 4.1                                  | 22.2                               |
| Utah                 | 1    | 5    | 1    | 3    | 2    | 5    | 1    | 2    | 2    | 1    | 2                  | 3.9                                  | 6.2                                |
| Vermont              | 0    | 0    | 4    | 1    | 1    | 1    | 0    | 1    | 0    | 0    | 1                  | 2.8                                  | 39.4                               |
| Virginia             | 8    | 16   | 16   | 11   | 10   | 9    | 10   | 23   | 13   | 5    | 12                 | 5.0                                  | 60.2                               |
| Washington           | 2    | 2    | 1    | 1    | 1    | 0    | 0    | 1    | 0    | 0    | 0.42               | 0.3                                  | 23.4                               |
| West Virginia        |      | 7    | 4    | 1    | 2    | 8    | 2    | 7    | 2    | 8    | 4                  | 2.3                                  | 72.0                               |
| Wisconsin            | 11   | 9    | 9    | 6    | 5    | 9    | 6    | 9    | 6    | 4    | 6                  | 2.0                                  | 53.2                               |
| Wyoming              | 5    | 5    | 6    | 0    | 4    | 5    | 0    | 2    | 2    | 0    | 2                  | 8.9                                  | 2.3                                |

\*Some rates based on fewer number of years. †From U. S. Census, 1930.



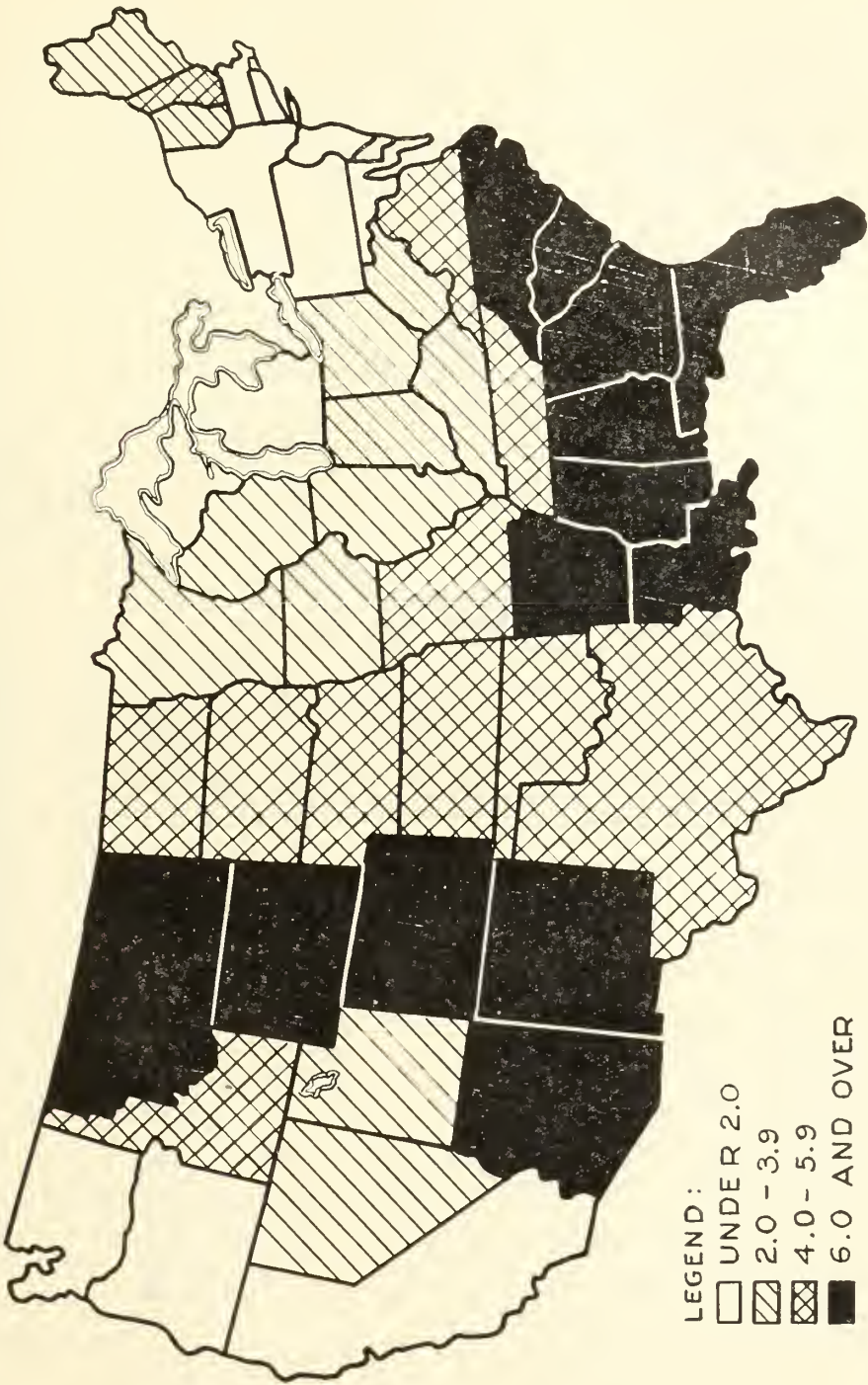


Fig. 1  
Geographic Distribution of Death Rates per Million from  
Lightning in the United States 1927-1933

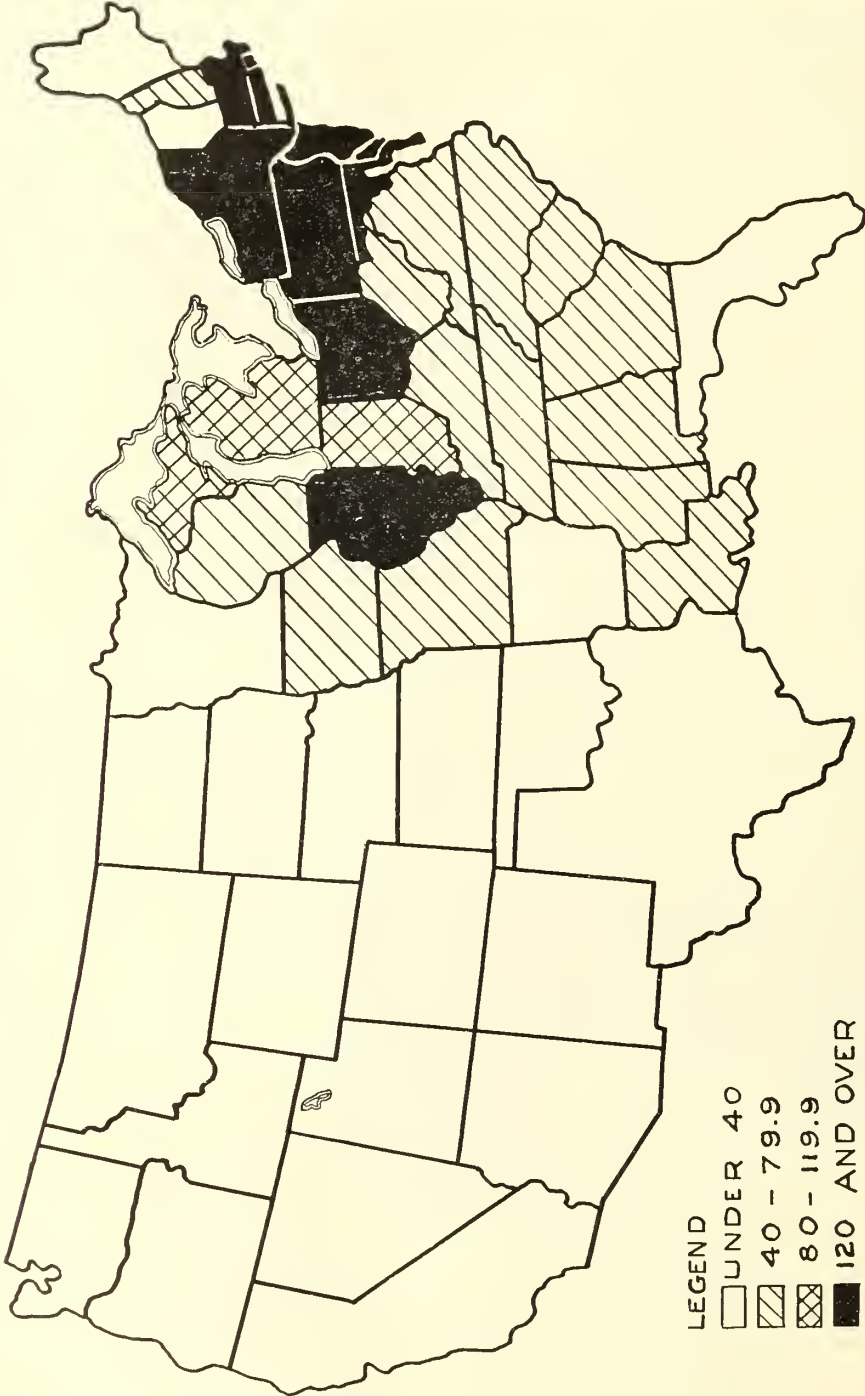


Fig. 2  
Density of Population of United States per Square Mile  
(Census of 1930)



# CURRENT STATISTICS

## \*PREVALENCE OF COMMUNICABLE DISEASES IN ALABAMA

1936

|                       | May  | June | Estimated<br>Expectancy<br>June |
|-----------------------|------|------|---------------------------------|
| Typhoid               | 12   | 46   | 94                              |
| Typhus                | 15   | 23   | 34                              |
| Malaria               | 322  | 416  | 897                             |
| Smallpox              | 1    | 0    | 2                               |
| Measles               | 74   | 14   | 335                             |
| Scarlet fever         | 20   | 13   | 30                              |
| Whooping cough        | 106  | 53   | 145                             |
| Diphtheria            | 50   | 27   | 38                              |
| Influenza             | 458  | 33   | 98                              |
| Mumps                 | 332  | 127  | 85                              |
| Poliomyelitis         | 0    | 15   | 10                              |
| Encephalitis          | 1    | 1    | 5                               |
| Chickenpox            | 193  | 25   | 44                              |
| Tetanus               | 7    | 6    | 6                               |
| Tuberculosis          | 359  | 298  | 362                             |
| Pellagra              | 61   | 62   | 148                             |
| Meningitis            | 59   | 11   | 6                               |
| Pneumonia             | 459  | 119  | 144                             |
| Syphilis              | 1041 | 984  | 922                             |
| Chancreoid            | 21   | 13   | 7                               |
| Gonorrhea             | 339  | 382  | 384                             |
| Ophthalmia neonatorum | 4    | 0    | 1                               |
| Trachoma              | 0    | 0    | 3                               |
| Tularemia             | 0    | 1    | 0                               |
| Undulant fever        | 7    | 5    | 5                               |
| Dengue                | 0    | 0    | 0                               |
| Amebic dysentery      | 1    | 1    | 0                               |
| Rabies—Human cases    | 0    | 0    | 0                               |
| Positive animal heads | 86   | 67   |                                 |

|                       | June | July | Estimate 1<br>Expectancy<br>July |
|-----------------------|------|------|----------------------------------|
| Typhoid               | 46   | 73   | 143                              |
| Typhus                | 23   | 46   | 9                                |
| Malaria               | 416  | 952  | 530                              |
| Smallpox              | 0    | 0    | 2                                |
| Measles               | 14   | 19   | 115                              |
| Scarlet fever         | 13   | 40   | 39                               |
| Whooping cough        | 53   | 46   | 144                              |
| Diphtheria            | 27   | 34   | 49                               |
| Influenza             | 33   | 7    | 22                               |
| Mumps                 | 127  | 49   | 21                               |
| Poliomyelitis         | 16   | 194  | 5                                |
| Encephalitis          | 1    | 4    | 2                                |
| Chickenpox            | 25   | 12   | 16                               |
| Tetanus               | 6    | 7    | 7                                |
| Tuberculosis          | 299  | 251  | 291                              |
| Pellagra              | 62   | 41   | 127                              |
| Meningitis            | 11   | 6    | 4                                |
| Pneumonia             | 119  | 58   | 59                               |
| Syphilis              | 984  | 991  | 189                              |
| Chancreoid            | 13   | 10   | 8                                |
| Gonorrhea             | 382  | 284  | 193                              |
| Ophthalmia neonatorum | 0    | 3    | 2                                |
| Trachoma              | 0    | 0    | 0                                |
| Tularemia             | 1    | 1    | 0                                |
| Undulant fever        | 5    | 6    | 3                                |
| Dengue                | 0    | 0    | 0                                |
| Amebic dysentery      | 1    | 0    | 0                                |
| Rabies—Human cases    | 0    | 0    | 0                                |
| Positive animal heads | 67   | 68   |                                  |

\*As reported by physicians and including deaths not reported as cases.

The Estimated Expectancy represents the median incidence of the past nine years. With the venereal diseases, clinic cases were not included prior to this year.

# Book Abstracts and Reviews

**Endocrinology in Modern Practice.** By William Wolf, M. D., M. S., Ph. D. 1,018 pages with 252 illustrations. Philadelphia and London. W. B. Saunders Company, 1936. Cloth. \$10.00 net.

The reviewer has recently read five books on the subject of endocrinology. Of these, Doctor Wolf's is the longest and most complete. The author has combed the world's literature in English, German, French, Japanese, Russian, Italian and Spanish. Out of the chaos of this tremendous accumulation of observations and theories he has brought order—classifying, simplifying and explaining.

The book consists of the following parts:

1. A description of the anatomy, physiology and pathology of each of the glands of internal secretion. These are illustrated by well selected photographs showing the various types of endocrine disturbance. At the end of each chapter there is a summary which is of practical value in reviewing preceding subject matter or for quick reference. In this part, the author discusses the relation of the endocrines to obesity, menstrual disorders, the menopause, pregnancy and sterility.

2. The second part of the volume deals with the relation of the endocrines to surgery, pediatrics, neurology, gastro-enterology, cardiology, dermatology, ophthalmology and otolaryngology.

3. The third section of the book deals with the practical subject of history taking, physical examination and laboratory procedures. There is a complete set of illustrations of x-rays to show normal epiphyseal growth and union.

4. In the fourth section of the book, the author has prepared a symptom diagnosis similar to that in Kitchen's volume but limited to the diagnosis of endocrine disturbances.

5. In the final section of the book the author lists the various endocrine preparations now on the market, discussing the method of preparation and standardization of each.

Both as a text-book and as a volume for daily use by the practitioner, this volume should replace all others on the subject of endocrinology.

C. K. W.

**Exophthalmic Goitre and Its Medical Treatment.** By Israel Bram, M. D., Medical Director, Bram Institute for the Treatment of Goitre and other Diseases of the Ductless Glands. Foreword by R. G. Hoskins, Ph. D., M. D., Director of Research, Memorial Foundation for Neuro-Endocrine Research, Harvard Medical School, Boston, Mass. Second Edition. Completely revised and enlarged. The C. V. Mosby Company, publishers, St. Louis, Mo. 456 pages, 79 illustrations. Cloth. 1936. Price \$6.00 net.

From his experience in the treatment of 5,000 cases of exophthalmic goitre and from his study of the world's literature, Doctor Bram has formed a theory of his own as to the etiology of Graves' disease. Though disagreeing with all current theories, he actually adds little to the reviewer's understanding of the origin of the disease. He considers the disease as a neuro-endocrine dysfunction—yet the exact nature of this dysfunction is not described. In the author's experience Graves' disease has followed some psychic trauma in 90% of the cases and it is this factor that he considers of great etiologic importance.

NEXT MEETING

BIRMINGHAM

APRIL 20-22, 1937

The symptoms of Graves' disease are discussed in great detail, as are also the laboratory tests used in connection with diagnosis of the disease. Though surgery and x-ray are not discussed, the author does not exclude them in the treatment of Graves' disease. He does, however, stress the value of medical treatment which consists of rest, adequate diet, abstinence from all stimulants, psychotherapy and the judicious use of quinine, iodine and the barbiturates. He has also described the natural history of the disease, stressing the tendency to spontaneous remission. Though readers may not agree with his enthusiasm for medical treatment, they cannot fail to be impressed by the results which the author has obtained in his cases. Just how large a part psychotherapy plays in his routine treatment, one cannot say. Unfortunately there are few details as to the methods of psychotherapy which he had employed.

C. K. W.

**Preventive Medicine.** By Mark F. Boyd, M. D., M. S., C. P. H., Member of Regular Field Staff, International Health Division of the Rockefeller Foundation; Formerly Professor of Bacteriology and Preventive Medicine in the Medical Department of the University of Texas. Fifth edition, reset. 561 pages with 155 illustrations. Philadelphia and London: W. B. Saunders Company, 1936. Cloth. \$4.50 net.

In no state should there be a keener interest in public health than in our own State. The unique relation which exists between the State Medical Association and the State Department of Public Health makes each practicing physician an integral part of the state government. Each member of a county medical society may some day be given the responsibility of serving as a member of a county board of health. In addition, every physician is to his own patients a sort of private public health officer. A knowledge of public health is therefore essential for every physician who wants to make the most of his responsibilities.

Because Alabama is largely an agricultural state, a text-book written by a college professor or the health officer of some large city might omit many problems of great local importance. Doctor Boyd is, on the other hand, a neighbor of ours who has been connected for some time with malarial research work at Talahassee, Florida, and he is familiar with those problems which confront us in Alabama. The reports of our State Health Department have been liberally quoted by him and several illustrations from pamphlets published in this State have been used in his book.

The field of public health has broadened considerably. It includes not only the methods of prevention of the spread of communicable diseases but also such engineering problems as water purification, disposal of excreta, ventilation and the prevention of occupational hazards. It enters also the field of veterinary sciences in such activities as the control of milk supplies. It enlists the services of the entomologist in the destruction of vermin and insect carriers of disease.

In a period of sixteen years Boyd's book has been through five editions. The revision at this time has been most radical in the sections dealing with colds, ringworm, psittacosis, diphtheria, encephalitis, poliomyelitis, pneumonia, tuberculosis, malaria, typhus, relapsing fever, silicosis, and sewage treatment.

C. K. W.

**Minor Surgery.** By Frederick Christopher, S. B., M. D., F. A. C. S., Associate Professor of Surgery at the Northwestern University Medical School, Chicago; Chief Surgeon at the Evanston (Ill.) Hospital. With a foreword by Allen B. Kanavel, M. D., F. A. C. S., Professor of Surgery at the Northwestern University Medical School. Third edition, reset. 1,030 pages with 709 illustrations. Philadelphia and London: W. B. Saunders Company, 1936. Cloth. \$10.00 net.

The intern, the physician just beginning practice, the doctor who answers many emergency calls, the doctor in the small town who must do everything connected with the practice of medicine, the young surgeon who would pass his apprenticeship in minor surgery in preparation for the greater responsibility of major surgery—all of these will find in Christopher's *Minor Surgery* a volume so indispensable that it will be kept always within easy reach.

Though made up largely of material taken from the author's own experience, original articles have been quoted freely. The volume thus combines the experience of the author and the experience of the thousands of contributors to the advance of surgical science. Published first in 1929, the volume is already in its third edition. The new edition includes sections on the injection of hernia, bismuth injection of warts, new methods of wound healing and many others.

Throughout the pages of this volume one will find many practical suggestions as to the technique of the type of minor surgery that one must do each day—local anesthesia, transfusion, the application of casts, bandaging and the treatment of wounds. The surgical intern will find a chapter devoted entirely to his needs, with notes on history taking, preoperative and postoperative care, operating room technique and remarks as to the duties, qualifications and responsibilities of a surgical intern.

This is no book for your book-shelf unless your shelf is within hand's reach.

C. K. W.

**The Eye and Its Diseases.** By 82 International Authorities. Edited by Conrad Berens, M. D., Ophthalmic Surgeon, Pathologist and Director of Research, New York Eye and Ear Infirmary; Special Consulting Ophthalmologist, Woman's Hospital; Consulting Ophthalmologist, Veterans' Administration Facility, New York; Lecturer in Ophthalmology, New York Eye and Ear Infirmary; Member of American Board of Ophthalmology; Member of the Society of Surgeons of Paris; Lieutenant-Colonel, M. R. C., U. S. Army. 1,254 pages with 436 illustrations, some in colors. Philadelphia and London: W. B. Saunders Company, 1936. Cloth. \$12.00 net.

In tribute to his father and to Doctor deSchweinitz, Doctor Berens has compiled a volume on "The Eye and Its Diseases" for which the ophthalmologic world should be greatly indebted to him.

The contributors to this volume include many of the greatest living specialists in the field of ophthalmology. The contributions have been well selected and well edited so that the subject is covered completely and each topic described in detail. It is the best book on the subject of ophthalmology since the Duane edition of Fuch's.

This volume is intended primarily for the specialist who will find in its pages those minute details so important to the accurate performance of his special type of work. Because of its simplicity in presentation, it may also serve a useful purpose for the general practitioner.

F. M. T. T.



**Heart Disease and Tuberculosis.** Efforts including methods of diaphragmatic and costal respiration to lessen their prevalence. By S. Adolphus Knopf, M. D. Issued by the patients at The Potts Memorial Hospital. The Livingston Press, Livingston, Columbia County, New York. 100 pages. Illustrated. Cloth. \$1.25 net.

In a booklet of a hundred pages, the author has expounded his theory of the value of diaphragmatic breathing in the prevention of tuberculosis and heart disease. It is actually little more than the author's "Report to the United States Government on Tuberculosis, with Some Therapeutic and Prophylactic Suggestions" which was published in 1933. The illustrations are the same, the text somewhat extended to include the advantage of this type of breathing in heart disease and hypertension.

The reviewer, with due apologies for his lack of experience in the application of diaphragmatic breathing, feels that the author has presented an imposing array of testimonials but a great lack of scientific controls. The author digresses to discuss other interests of his—B. C. G. vaccination and radio therapeutics in heart disease. The subject matter could be condensed in less than a hundred pages.

B. W. C.

**Surgical Clinics of North America.** Issued serially, one number every month. Volume 16, Number 1. Chicago Number—February 1936. 356 pages with 78 illustrations. Per clinic year, February 1936 to December 1936, paper \$12.00; cloth \$16.00 net. Philadelphia and London: W. B. Saunders Company, 1936.

The Surgical Clinics of North America have always been one of the most practical of our surgical publications. The publishers have now attempted to make them more practical. Faced with a task little less difficult than painting the lily or perfuming the rose, the publishers have met with such success as would be expected. The plan of offering with each issue a symposium on some important subject will probably prove more successful in future issues than in the one being reviewed. The February issue is not one of the best issues, but on the whole, the reader will find every issue of great value and, even without improvements, practical in every sense of the word.

C. K. W.

## Truth About Medicines

### ACCEPTED DEVICES FOR PHYSICAL THERAPY

The following devices have been accepted by the Council on Physical Therapy of the American Medical Association for inclusion in its list of accepted devices for physical therapy:

**Burdick Suction-Pressure Unit.**—This unit is recommended by the firm for the administration of suction-pressure therapy, particularly in the treatment of peripheral vascular disease. It consists essentially of a pump for creating positive and negative pressures, a motor, and a boot or chamber

in which the extremity is inserted for treatment. Some indications for its use appear to be acute vascular occlusion, freezing, and vascular diseases with major involvement of the large vessels. The Burdick Corporation, Milton, Wis.

**Drinker Infant Respirator.**—An apparatus for producing and maintaining artificial respiration in infants. It consists mainly of a chamber of suitable size to accommodate an infant. Insulated heating elements are provided for maintaining body temperature. The machine was carefully investigated in twelve cases in a clinic acceptable to the Council. All the infants survived and were discharged from the hospital in satisfactory condition. The respirator is a valuable adjunct when efforts at resuscitation must be persisted in for a long time. Warren E. Collins, Inc., Boston, Mass. (J. A. M. A., Aug. 1, 1936, p. 354.)

**Sanborn Motor-Grafic Model E-I-S Metabolism Tester.** A closed circuit motor blower, spirometer type of metabolismeter. The apparatus was tested for leakage and accuracy as to volume and found to be satisfactory. The ease of operation and efficiency of this machine were found to compare favorably with other valve type machines. Sanborn Company, Cambridge, Mass. (J. A. M. A., Aug. 22, 1936, page 587.)

### PROPAGANDA FOR REFORM

**Status of Picrotoxin.**—The Council on Pharmacy and Chemistry reports that Picrotoxin, which is an extremely active poison, has long been proposed for use in a variety of conditions, including poisoning with chloral hydrate; but a wide experience has always resulted in its falling into practical disuse. Calling attention to the recent work of Maloney and others indicating that picrotoxin may have a certain value in combating the acute toxic effects arising from overdosage with barbitol and its derivatives, Eli Lilly & Co. asked the Council to consider Ampoules Picrotoxin (Lilly) for admission to New and Nonofficial Remedies as an agent for use in this condition. The Council is, however, convinced that the evidence now available for this use does not justify the placing of a marketed product in the hands of the general practitioner

irrespective of his facilities for using it with the greatest benefit to his patient, for determining its therapeutic value and contributing the evidence in a satisfactory way. When informed of the Council's attitude in the matter of offering picrotoxin to the general practitioner, Eli Lilly & Co. announced its intention of withdrawing its Picrotoxin Ampoules from the market. The Council desires to express its appreciation of this enlightened action on the part of the firm and to voice the hope that other manufacturers of pharmaceuticals will refrain from making picrotoxin generally available until competent investigators have cleared up the questions of its safety and clinical effectiveness. (J. A. M. A., Aug. 1, 1936, p. 354.)

Change in Name of Committee on Foods to Council on Foods.—On the recommendation of the Committee on Policy, Rules and Procedure (representing the Council on Pharmacy and Chemistry, the Council on Physical Therapy and the Committee on Foods) the Committee voted that it would be advantageous to change the name "Committee on Foods" to "Council on Foods." The name "Council" gives to this group a title uniform with that established by the Association for similar bodies. The Board of Trustees, at the Kansas City meeting, ratified the change, which took effect July 1, 1936. The seal of the Council on Foods is identical with the older seal of the Committee except for the change in name. (J. A. M. A., Aug. 1, 1936, p. 355.)

Energy Claims for Foods.—The Council on Foods has revised the wording of its earlier decision on energy claims for foods. According to the new revision, food advertising should correctly inform the public of the energy values of foods in carefully chosen terms that may be properly interpreted. The distinction between the caloric and popular senses of the word "energy" must be recognized and observed. The advertisers of food products should also take cognizance of the fact that limitation of the energy intake is essential for reduction of body weight. The expression "Provides energy" or "Furnishes energy" is acceptable when it is clearly indicated by appropriate modifying phrases that "food energy" or "calories" is meant. In general, ordinary foods except water and salt are

sources of energy. Statements of calories per unit weight are useful as indicating relative economy of different foods as sources of energy, but for healthy persons calories from one food are not to be regarded as of more value than those from any other food. (J. A. M. A., Aug. 1, 1936, p. 355.)

Statement on Scope of Considerations of the Council on Foods.—The Council on Foods has acted recently to limit somewhat the scope of products which it will include in the list of accepted foods, believing that in so doing its facilities profitably can be concentrated on those food products which require its attention. The Council has voted that the following products henceforth shall not be considered, as the need to pass on them no longer exists: ordinary breads and similar well known bakery products the nutritional features of which are generally recognized; frankfurters and other sausage products; carbonated beverages and their syrup bases; dyes for coloring foods and Easter eggs. If any products falling in the foregoing classes should be developed which have nutritional value beyond that of ordinary products, or if special claims are advanced, the Council will consider such claims and report on them when such action is considered desirable. Manufacturers and distributors of accepted products falling within the foregoing classes have been given a reasonable time to use up their present supplies of labels and advertising which bear the seal of acceptance. (J. A. M. A., Aug. 8, 1936, page 431.)

Foods for Weight Reduction. — The Council on Foods reports that it is now possible to plan for the person whose natural tendency is to eat beyond his caloric requirements a diet which will enable him to burn accumulated body fat and at the same time protect him from the dangers of undernutrition. A reducing diet is most successful when it differs radically from the individual's eating habits. The natural foods of which such a diet principally ought to be composed are skimmed milk, leafy vegetables prepared without fat of any kind, fruits without added sugar, and lean meats. In addition, vitamins A and B<sub>1</sub> must be supplied in concentrated form. (J. A. M. A., Aug. 8, 1936, p. 431.)



# THE JOURNAL

OF

## The Medical Association of The State of Alabama

Published Under the Auspices of the Board of Censors

---

Vol. 6, No. 4

Montgomery, Alabama

October 1936

---

### THE PRACTICAL APPLICATION OF PHYSIOLOGICAL PRINCIPLES IN TREATMENT OF FRACTURES\*

By

WILLIS C. CAMPBELL, M. D.

Memphis, Tenn.

The practical application of the principles of bone growth and repair is essential if the maximum number of successful results is to be secured in the treatment of fractures, or any other pathological lesion of the skeletal system. There has been such a great increase during recent years in the number of fractures as well as the severity that treatment has become a great economic problem which cannot be solved alone by orthopedic surgeons and those interested in the treatment of fractures, but by the co-operation of the entire profession.

Bone is usually regarded as an inert substance whose chief function is the formation of the skeletal framework of the body, but there are other functions of equal importance to the organism. In the bone marrow there is a large portion of the hematopoietic system in which all of the red blood cells and many of the white cells are formed. As a result of this very intimate connection with the blood, there is much danger of general dissemination in osseous infection and neoplasm. Bone is also the storehouse for calcium, which is an essential element for every living cell in the body. The slow reaction often observed in bone is due to its dense nature and is more apparent than real, as time is required before objective findings are manifested. Quite frequently months, and occasionally years, may elapse before manifestations of a pathological process may be demonstrat-

ed by the roentgenogram. Bone is an active living tissue, as manifested by an abundant supply of nerves, lymphatics and blood vessels, and must be so regarded.

A fracture is not merely a break in the continuity of a bone but also involves the soft structures, as blood vessels, muscles, fascias, nerves and skin, which are of practical importance and may seriously complicate repair.

The essential factors involved in bone growth and repair may be divided into general and local. I. The general factors are (1) constitutional, and (2) metabolic disorders. A constitutional disease, as syphilis, is often given as a cause of impairment in the healing process of bone, but it is rarely found to be a causative agent. In multiple fractures frequently union is delayed at one or more areas, which apparently indicates that nature is incapable of supplying the excessive demand for callus production. Bone metabolism is influenced by certain endocrine glands, especially the parathyroid, as indicated in a well known disease, osteitis fibrosa cystica, in which there are certain destructive changes throughout the skeletal system due to adenoma and hyperplasia, with hyperactivity of these small glands. In this condition the removal of excess gland tissue effects a cure of the process. Also excess dosage of the parathyroid hormone will reproduce the disease in animals. When there is hyperactivity of this gland, the calcium content of the blood will be increased; conversely, there is a hypocalcemia if too much of this gland is excised in thyroidectomy, and tetany will be produced. In rickets a disturbed calcium metabolism is also observed. Deficiency in vitamin D is the causative agent. In neither rickets nor osteitis fibrosa cystica is union of fractures prevented or delayed.

---

\*Read before the Association in annual session, Montgomery, April 21, 1936.

In fractures and any other traumatic lesions due regard must be given to an adequate diet containing sufficient vitamins, the eradication of all focal infection, and any abnormality which may exist, as good health is conducive to a healing process.



Fig. 1

Fresh central or intramuscular fracture of the neck of the femur.

II. The local factors of repair are by far the most important and may be enumerated as follows:

1. Blood clot or area of stasis
2. Circulation
3. Presence of free calcium
4. Approximation of fragments
5. Osteogenesis, osteolysis, osteoclasia
6. Periosteum
7. Endosteum
8. Location
9. Functional adaptation
10. Atrophy—osteoporosis
11. Age.

1. The blood clot between the fragments produces an area of stasis or aseptic necrosis, which is conducive to the normal infiltration of calcium as observed in the calcification of any tissue in the body in which there is necrosis. This area presents the

proper medium for the evolution of the delicate process of repair.

2. An active blood supply must surround the area of stasis or blood clot to promote repair.

3. The presence of free calcium in the lo-

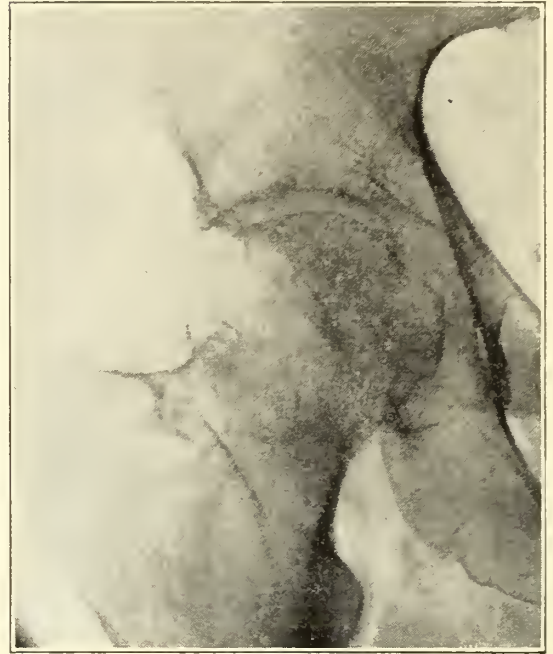


Fig. 2

Same patient. Solid union and perfect result at the end of one year. Patient observed after period of five years, result still excellent. Notice reformation of trabeculae across the line of fracture which is the only means by which solid union can be determined.

cal area is a source of supply which enhances callus formation.

4. Approximation of fragments without interposition of tissue obviously is essential.

5. Osteogenesis and osteolysis and osteoclasia, bone formation and bone dissolution. Osteogenesis is the production of bone; osteoclasia is the destruction of bone by large giant cells; osteolysis is the absorption of bone. In normal callus production these processes are well balanced, but if either is in excess there will be deficiency in quality. If osteogenesis is in excess there will be massive callus but of poor quality, and decrease in tensile strength or failure to secure perfect union between the two fragments. If osteoclasia or osteolysis is in excess, there will be dissolution of



callus if formed, or the active prevention of osteogenesis.

6. The role of the periosteum has been the source of much discussion since the days of DuHamel and Haller, the former contending that bone was produced from the periosteum, the latter that the function was merely that of a capsule or limiting membrane. As the blood supply passes through the periosteum we do know that conservation of this structure is of great importance, regardless of its function.



Fig. 3

Impacted fracture of the neck of the femur. Solid bony union and excellent result.

7. The endosteum also has a definite role in the process, which was proven many years ago by the author in the use of this structure as a free graft to induce osteogenesis. However, in the average fracture the endosteum is not often impaired, due to the protection afforded by the cortex.

8. Healing differs as to location; in the hard dense cortex union is much slower than in the flat bones and the cavernous area in the extremities of the long bones.

9. Functional adaptation is the response to the mechanical demands—"as a tree is bent so will it grow." This is a compensatory action of nature. For example: Where there is bowing of a bone following a fracture, callus is produced in excess on the concave side; also, if there is loss in bone

continuity in the tibia, there will be hypertrophy of the fibula. The trabeculae of the bone are formed along the lines of stress, which is well illustrated in the neck of the femur where there is a definite pattern, the trabeculae crossing each other as they en-

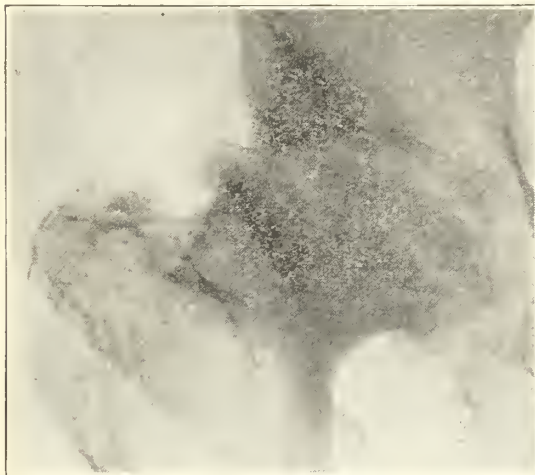


Fig. 4

Same patient, five years later. Complete disintegration of the head due to aseptic necrosis from impairment of circulation.



Fig. 5

Fracture of the neck of the femur after eight months. Apparently solid union.

ter the head of the bone, leaving a defective space or weak spot in the neck through which central or intracapsular fractures always occur.

10. Bone atrophy is of two distinct types: (1) atrophy of disuse, (2) osteoporosis. Atrophy of disuse occurs after pro-



Fig. 6

Same patient. Disintegration with separation of fragments at the end of six months, due to improper use of the limb.



Fig. 7

One year later, complete separation.

longed fixation or lack of use, as observed in ununited fractures and chronic destructive diseases of joints, but is rarely a factor in fresh fractures. Osteoporosis is a physiological process which occurs in every fracture, probably caused by increased active circulation with absorption of the ends of the fragments. In this manner free calcium is made available for local callus production. When osteoporosis becomes excessive, the condition is pathological, and also extends over a much larger area. Also there is reaction in the soft structures as denoted by pain, swelling with cyanosis and hyperemia, probably denoting a vasomotor phenomenon of the sympathetic system. Osteoporosis is rare in the young, being of

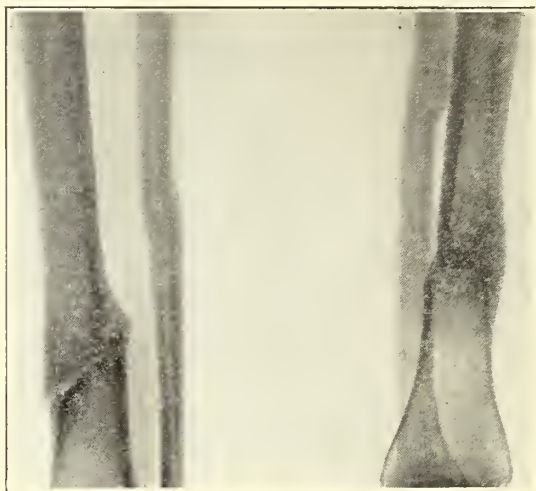


Fig. 8

Fracture line is still present after six months.  
Union clinically solid.

more frequent occurrence in those above the age of 40.

11. Age materially affects the quality of the bones. A man is as old as his bones is just as applicable as "a man is as old as his arteries." Before full growth is attained the epiphyses are present and must not be violated. In children bone is more succulent and less dense, therefore more prone to bend, as observed in greenstick fractures. Except where there is local impairment of circulation union is more rapid in the young, as may be demonstrated by the roentgenogram. As old age advances the entire skeleton may undergo atrophy of disuse, as may be demonstrated by compression of the vertebrae, and decrease in the angle of the neck of the femur. How-





Fig. 9-a

Roentgenogram does not demonstrate any union between the fragments, clinically there is solid union.



Fig. 9-b

ever, in the aged as in children, fractures do unite unless there is some local disturbance in circulation, but a longer time is required.

There are two theories regarding local bone repair: (1) the cellular, and (2) the physiochemical. The cellular theory assumes that bone is secreted by specialized cells, the osteoblasts, which are always present in large numbers; the physiochemical, that the process is a local one due to the activity of a special ferment, phosphatase, and a certain local chemical reaction in the presence of free calcium; that the osteoblasts act to repel and not to make callus. As neither is definitely proven they are of more academic than practical interest.

A fracture is not merely a break in the continuity of a bone but is an injured extremity. Hence trauma to all component parts must be duly regarded. In fractures union will be delayed, prevented, or impaired in quality unless an area of stasis, as found in a blood clot, surrounded by an active blood supply, can be maintained. Excessive force in repeated attempts to reduce a fracture may disseminate the blood clot

and at the same time detach the surrounding soft tissue from which the blood supply is derived. Union is, for this reason, delayed in compound fractures and also to some extent when open methods are employed, regardless of how carefully the circulation may be considered.

Inefficient splinting or no splinting of fractures during transportation may bring about irreparable damage. The blood clot may be extruded from between the fragments causing more hemorrhage and injury to the soft tissues, and most important, impairment of circulation to the fragments; important vessels and nerves may be severed. Continued injury may bring about severe shock. The efficacy of proper splinting was demonstrated during the World War. In the first Battle of the Somme there was an exceedingly high mortality when patients with fractures were transported without splints. In the second Battle of the Somme, the mortality was reduced to approximately 20%, with efficient splinting.

When there is an imbalance of osteoclasia and osteolysis, callus may be prevented, or there may be a clinical union with gradual



Fig. 10

Massive callus of low grade quality. Clinically motion is still present at fracture site.

dissolution within a few days. The process of bone repair is a very delicate one and any interference, as frequent motion which may injure the new formed tissue, will probably cause either excess low-grade callus or dissolution. Angulation, after apparent solid union, may be due to such an imbalance and is not uncommon in fractures of both bones of the forearm, the



Fig. 11

Arrested growth from epiphyseal separation, lower radial epiphysis.

shafts of the femur and humerus, and the lower third of the leg. In fact, these are the most frequent sites of non-union in long bones. Therefore, such fractures in adults frequently require protection by some type of brace or apparatus that will permit active use without undue strain until organization is complete, which may be several months. This not only prevents distortion, but also induces more normal activity in circulation and in muscular action, and in increased calcium of the bone,

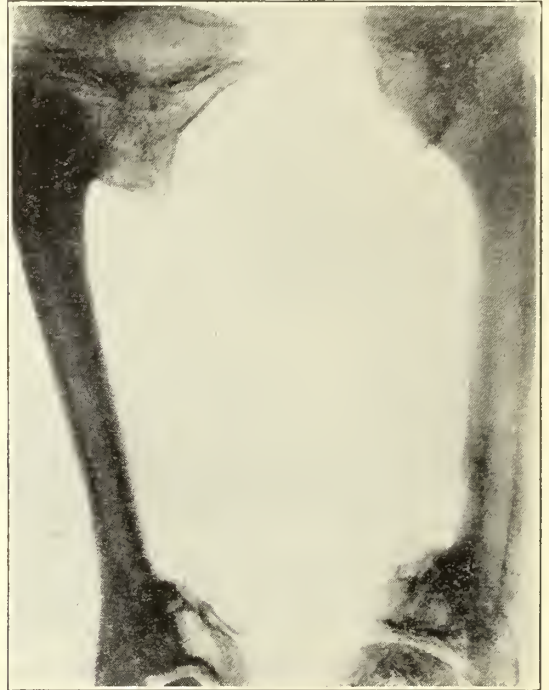


Fig. 12

Transplanted fibula supplanting shaft of tibia. Note functional adaptation with marked increase in dimension of bone from use.

thus decreasing osteoporosis. In certain locations, as fractures about the ankle, immediate weight bearing with efficient splinting is now employed to great advantage, restoring the individual to normal activity in a much shorter space of time.

Crushing of soft parts also induces scar tissue reaction which may invade the fracture site and delay or prevent union. New granulation tissue required in the production of bone is embryonic in character and can be easily destroyed by the formation of a more adult fibrous tissue.

In non-union the connection between the fragments may be fibrous tissue or a pseu-



do-arthritis may be formed by friction due to constant motion, the fragments being invested by fibrocartilage. There also may be synovial fluid and a joint capsule.

Fractures differ in their reaction as to location and type of bone involved. In the shaft the bone is very dense and callus production is slower than in the extremities where the bone is cavernous or spongy; consequently, fixation should be as complete as possible until union is solid. Spongy bone presents more extensive osseous surfaces for invasion of new callus. Union, therefore, is more rapid near the articular surfaces and permits ear-

torted elbow joint. Central or intracapsular fractures of the hip may occur at any age, but are more frequent in elderly individuals. Union is always delayed at this location from many causative factors. The most important is the severance of the principal circulation to the head or proximal fragment. Therefore, the fragment be-



Fig. 13

Fracture of the external condyle of the humerus in childhood without reduction. Note extensive changes in joint with non-union and deficient growth.

lier function, which will prevent permanent ankylosis. With the exception of certain locations in which circulation is normally impaired or other atypical conditions, non-union very rarely occurs in cavernous or spongy bone. In an operation described by the author for paralytic feet spongy bone is transplanted to the posterior aspect of the ankle to limit drop foot or plantar flexion. In 100 per cent the graft has lived. Union is more rapid in children, but efficient circulation to the fragments is also essential. This is demonstrated in fractures of the external condyle of the humerus in which union does not occur unless almost perfect approximation is secured. Such fractures, occurring in early childhood, are frequently observed in adult life with non-union and an impaired and dis-

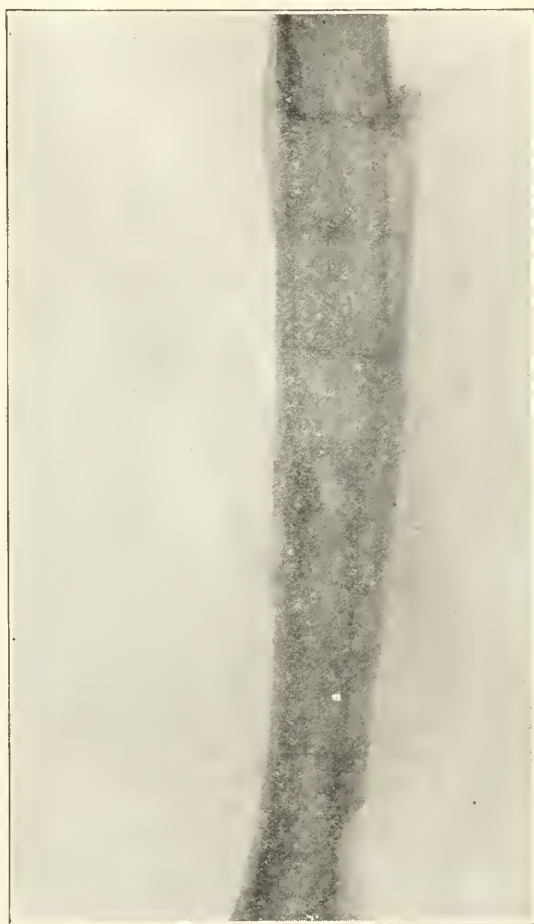


Fig. 14

Increased dimension of bone following author's method of onlay bone graft.

comes a more or less aseptic sequestrum from which no callus may be expected. These two fractures, the external condyle of the humerus and the neck of the femur, demonstrate clearly the importance of conservation of circulation.

In all open reductions the circulation must not be impaired by the severance of the local blood supply. As has been formerly emphasized, a surrounding active circulation is essential to bone reproduction. The circulation is derived from the

nutrient arteries within the bone and from the soft tissues attached to the bone in the vicinity of the joint. From practical experience it has been definitely proven that the blood supply from the nutrient arteries is not sufficient to nourish the articular extremities and adjacent bone. When there is stripping of the soft tissues from the extremities of the bones in any operative procedure, aseptic necrosis may occur, which will delay union or result in non-union. The average time of union after open operation in which there must be some impairment of circulation is greater than in fractures treated by closed manipulation. This is also observed in compound fractures.

Roentgenograms alone should not entirely determine the progress of the case, but inspection of the limb for any changes in contour must be made at intervals, as future function is dependent on the maintenance of a good anatomical reduction until consolidation is complete. The value of roentgenogram lies in the determination of the relation of the fragments rather than the degree of union, for not until there has been complete consolidation with organization will the roentgenogram demonstrate solid union. The clinical signs of union are apparent much earlier than the x-ray manifestations. Any angulation may still be corrected while the callus is malleable.

The routine care of fractures may be briefly summarized:

1. Good reduction from inspection of external contour, checked by roentgenogram.
2. Confirmation of reduction by roentgenogram, made without removal of splints at the end of one week.
3. Removal of splints or cast for inspection while callus is still malleable, checked by roentgenogram and any angulation corrected.
4. In certain fractures continued protection for an indefinite period until absolute consolidation is demonstrable by roentgenogram and clinical examination.

There is no rule of thumb in treating fractures as each is a separate clinical problem. Procedures in the treatment of fractures are too frequently applied as a carpenter, cabinet-maker or sculptor would approach a mechanical problem. Whereas, equally or more important than the me-

chanical aspect is the practical application of the physiological principles enumerated and illustrated above, if a maximum degree of success is to be attained.

## DISCUSSION

*Dr. Marcus Skinner (Selma)*—It is indeed refreshing to hear a paper concerning the normal and pathological physiology of fractures rather than one describing the latest mechanical gadget to effect and maintain the reduction of broken bones. There is no doubt that in our enthusiasm for new appliances in the treatment of fractures there has been a tendency to forget the broad physiological principles on which successful fracture therapy is based. Dr. Campbell's remark that a fracture should be considered as an injury to an extremity rather than a localized injury to a certain part of a bone is timely. I can think of nothing better in the way of discussion than to accentuate this great truth by the discussion of just what such a statement really means.

If one visualizes an extremity that has sustained a major fracture it is obvious at a glance that within a few hours from the time the fracture occurred there have been profound changes in the normal physiology of the extremity. On inspection we find in many instances that a general swelling has occurred which in many respects suggests an aseptic cellulitis. Such a condition cannot possibly occur without a profound alteration in the circulation both of the blood and the lymphatic systems. A definite disturbance of the nutrition and drainage of the venous and lymphatic systems is certain to cause cellular change in areas that are quite remote from the major trauma. These striking changes cannot be accounted for in all instances by coexistent trauma to soft parts although of course in some instances contusions not immediately contiguous to the site of the fracture are responsible for such swelling and the phenomena of aseptic cellulitis.

The pathological physiology initiated by the fracture is particularly liable to affect contiguous joints, not the joint surface but the fibrous tissue surrounding the joint which is such an important structure in the proper functioning of the joint. Indeed the extraordinary reaction that takes place in the periarticular structures of joints contiguous to a fracture at times is as important in clinical treatment as attention to the original lesion—the fracture. An examination of the fracture should include a careful examination of all joints of the extremity involved and there is no doubt that any number of severe sprains, even lacerations of ligaments and intra-articular mechanical derangements of neighboring joints are caused by the same trauma that caused the obvious fracture. All contiguous joints should be carefully examined, particularly the knee joint which is so often the site of rupture of the ligaments and mechanical derangement of the cartilages. In my own experience I have seen dislocations of the semilunar cartilage in two cases coincident with a major fracture at some distance from the knee joint. In one instance it was necessary to remove the internal cartilage in the case of a



fracture involving both bones of the leg at the junction of the middle and upper thirds in order to obtain a clinical cure. In this particular case the patient complained bitterly of the knee joint after there was excellent union and he was ambulatory. Removal of the cartilage resulted in a complete cure.

In addition to the disturbed physiology incident to the circulatory changes occurring in the limb which is the site of a major fracture, present-day methods of fixation are responsible for another factor in the production of altered physiology. Any organ or structure in the body, when not allowed to exercise its normal function, undergoes certain changes in its actual structure. The modern treatment in many instances implies fixation of contiguous joints and as a result of fixation the phenomena of muscle atrophy, round cell infiltration and hyperplasia of fibrous tissue occur, together with alteration in the normal circulation of the blood and lymph. The extent of these changes varies with the age of the individual, the length of time immobilization is in effect and the particular predisposition of certain patients to fibrosis of the joints. I dare say all of you have seen the almost complete ankylosis of all fingers of the hand following even a good reduction of a Colles' fracture and are familiar with the stiffness and pain in the knee of the patient who has obtained an excellent result from a fractured neck of the femur. At times such sequelae of fractures tax the ingenuity of the surgeon far more than did the treatment of the initial lesion.

The shoulder joint is a great offender in this respect. Oftentimes after fractures about the elbow, where there has been no complete fixation of the shoulder, the shoulder being denied merely wide abduction or hyperextension, we find this joint undergoing periarticular fibrosis often requiring the forcible breaking up of periarticular adhesions.

It is not within the province of this discussion to go into technical details of the protection of specific bones from these pathological changes caused by the deprivation of the joint of its normal function. The etiology of these conditions is due to their prevention and treatment. The frequency of such unfortunate sequelae can be minimized by a recognition of the fact that the joints adjacent to the fracture and which are immobilized during treatment of the fracture are subject to potential disabilities of a serious nature. For practical purposes it might be said that all joints of an extremity which is the site of a fracture and which are not immobilized by the fixation dressing ought to be moved passively through their full range of motion daily. Such movement simply abolishes the etiological factor in the production of stiffness but it does require care on the part of the surgeon and cooperation of the patient. Of course active motion is usually better than passive motion but for obvious reasons it is at times impractical. Massage is also of great value in preventing stiffness of neighboring joints that are immobilized but there is really no substitute in any type of physiotherapy for the full functional use of the joints.

The joints which of necessity have been immobilized while the fracture is uniting often present a problem of varying complexity. The immediate

disability following removal of the fixation apparatus ranges from a transient stiffness that corrects itself through active motion on the part of the patient to joints that present evidence of brawny infiltration, that are painful and most resistant to mobilization.

The proper interpretation of the pathology present in these stiff joints is a matter of great importance as successful treatment depends on it. It is hardly pertinent to this discussion to go into the details of differentiation of the types of fibrosis encountered but it is sufficient to say that a genuine interest in the study of these conditions on the part of the surgeon will be most interesting to himself and useful to his patients.

*Dr. W. C. Hannon (Mobile)*—One phrase of the Doctor's paper is paramount and I quote: "A fracture is not merely a break in the continuity of a bone but also involves the soft structures, as blood vessels, muscles, fascias, nerves and skin, which are of practical importance and may seriously complicate repair." This embodies the real meat of the status in the treatment of fractures today. Too much cannot be said in regard to the adjacent soft tissues in traumatic bone.

In regard to the local factors incident to bone repair, the blood clot has become firmly fixed in my mind by the advent of employing the local infiltration of novocaine for reductions. The hemorrhage accompanying fractures is much more than ordinarily thought and at times is so profuse and under such pressure that the piston of the syringe is actually forced out of the cylinder and often one may experience the feeling that a large blood vessel has been punctured. The other factors mentioned are all essential with emphasis on the calcium metabolism, accuracy of position of fragments, location of the fracture, and the reparative process of the periosteum, endosteum, and circulation.

A fractured bone of an extremity is truly an injured extremity and in the treatment should be treated as a whole, with special reference to the adjacent joints, which become rapidly fixed by non-use, decalcification with secondary contraction of the joint capsule and all other contiguous soft tissues as the muscles, nerves, and blood supply. This state of affairs coupled with an ischemia results in non-use ankylosis, so pronounced in patients over forty years of age. If ever physiologic principles should be adhered to it is in this instance, not only locally but generally. Toxemia from the intestinal tract, teeth or any foci soon play their role in producing changes in these adjacent joints, which are fertile, and must of necessity receive adequate care by their elimination. This is forcibly illustrated in the shoulder where fractures occur in the humeral shaft, elbow, or any part of the extremity, and if not anticipated by early motion together with the care mentioned above will usually terminate in a residual disability that requires a long and intensive treatment to correct. By proper mobilization with no obstruction to the circulation these joints can be reasonably assured good function by the time the fracture has healed. Preservation of function in intracapsular fracture is a story unto itself and requires frequent observation by inspection, x-ray, and the institution of

passive motion when repair has advanced sufficiently far enough not to produce loss of position of the fragments and consequent deformity with a permanent restriction to active motion.

Much has been said of calcium metabolism, and rightly so, for it is part and parcel of bone repair and does not require any lengthy discussion.

Every reduction should be planned by a careful study of the x-ray with an objective for the best possible approximation of fragments, preservation of circulation and a minimum additional trauma to the soft tissues; efficient immobilization in a neutral position for preservation of the position obtained and to avoid stretching or contraction of the musculature. This is truly a physiological procedure. Nerve injuries, hemorrhage, and other soft tissue injury do not always occur at the time of the primary trauma, but often from rough manipulation, especially in the region of the elbow as seen in supracondylar fractures.

The detail of after care, always thinking of an end result in terms of function, is not only desirable but in these times demanded and the results obtained are in direct proportion to the efficiency of the procedure. Of course, there are times when the damage done and the complicating infections in compound fractures preclude this ideal as a primary result but it is often amenable to secondary work at least for improvement.

Time does not permit any lengthy discussion of the physio-pathological, histological, or biochemical survey of the role of the periosteum, endosteum, or the production and destruction of callus, other than to fully substantiate the statements of the reader. Indeed, the adequacy of his presentation on this subject amply qualifies such matters.

---

## A CLINICAL STUDY OF INTESTINAL OBSTRUCTION\*

By  
P. P. SALTER, M. D.  
Eufaula, Ala.

The only treatment for intestinal obstruction, a condition not as rare as formerly supposed, is surgery. Exploration is warranted on the barest suspicion that it exists. A properly made exploratory incision seldom does any harm, and surely it is a better thing to open the abdomen and find nothing than to open it after days of delay, when a moribund patient carries his diagnosis on his face, and find pathology which, because priceless time has been lost, no amount of surgical judgment and no exhibition of surgical dexterity can possibly remedy.

The protean character of intestinal obstruction is very often overlooked. It is anything but a simple disease. It is true

that in the beginning, unless there is immediate circulatory damage, the picture is one of a simple blockage of the fecal current by some mechanical obstruction. But once the pathology has lasted an appreciable time, even these cases, which have begun as simple obstruction, merge promptly into the vascular type. Then, with interference to the circulation, comes damage to the bowel wall, gangrene, necrosis, sloughs, even perforation with consequent peritonitis, and the elaboration of a toxemia which is, perhaps, the most serious feature of all.

A carefully taken history is of chief importance. Symptoms and their relations to each other should be investigated. Special attention should be paid to pain, the earliest and most constant symptom and the inevitable concomitant of intestinal obstruction. I would remind you, however, that the abdominal viscera are largely insensitive, even when they have become pathologic, and that a proper comprehension of the mechanism by which pain is produced is even more essential in this case than it is in most other abdominal diseases. Only in rare instances is exact location necessary or possible. The pain, colicky in nature and severe, most usually originates about the umbilicus, less often in the epigastrium, but finally the whole abdomen is implicated.

Vomiting is by no means the constant symptom which pain is; it is present in about 70% of cases. In obstruction of the small bowel it is present from the start, at first as a reflex phenomenon, later because of a hypersecretory activity of this normally very active portion of the intestine; an activity which may be increased, aside from the obstruction, by misguided efforts to force fluids by mouth. In colonic obstruction, on the other hand, vomiting is usually a late symptom and it may never appear. At first the vomitus consists of gastric contents, then of bile-stained fluid, and, finally, of true fecal matter, unless this latter development is prevented by the fact that the small bowel obstruction acts upward as well as downward. There is no more misleading symptom than this same fecal vomiting. Though it is absolutely diagnostic of obstruction it is likewise absolutely prognostic of impending death, says Handley. When one waits for fecal vomiting to make a diagnosis of obstruction it

---

\*Read before a meeting of the Southeastern Division of the Association, Wetumpka, June 25, 1936.



is not a sign of obstruction but a sign of beginning death.

Distention is the promptest and most conspicuous physical sign in one-third to one-half of all cases; but again it is an inconstant manifestation and a late one, except in volvulus of the sigmoid, when it may be prompt and alarming. Tenderness is never apparent until after distention has appeared. Rigidity is evident only when localized peritonitis has set in or gangrene is present. In marked toxemia, when the muscular defense is lacking, it may not appear at all.

Visible peristalsis is pathognomonic, but can be demonstrated only occasionally and late. Audible peristalsis, however, is a different matter, and I agree with Deaver that auscultation of the abdomen, either with the naked ear or stethoscope, should never be omitted.

Elevations of temperature, as would be expected in a condition that is not primarily inflammatory, are never present in the early stages of intestinal obstruction. On the contrary, normal or distinctly subnormal temperatures are the rule. However, the pulse tends to rise speedily, and this fact, taken in conjunction with the low temperature, is an important diagnostic point.

Shock is apparent from the first when the circulation is affected, is always associated with distention, no matter what the primary cause of the obstruction, and is always a part of the toxemic picture of the final stages and is allied to surgical shock. The blood pressure of these patients, therefore, must be carefully watched from the outset.

A routine urinalysis is, of course, imperative, but otherwise the laboratory offers small aid, except of a negative kind, in the early case. The blood count, unless the circulation is affected, remains within the normal limits until inflammatory changes have set in. Continued vomiting eventually produces definite body changes, the most marked of which is disturbance of the blood electrolytes, depending largely on the location of the obstruction. Blood studies will often show a loss of chlorides, a rise in the nonprotein nitrogen and a rise, sometimes to extraordinary figures, of the carbon dioxide combining power of the plasma. These changes, however, occur too late to be of diagnostic value, and there is small

ground for the suggestion, occasionally advanced, that the indications for operation in intestinal obstruction should be based upon repeated tests and findings of this character. Renal damage is evident late, not only in the laboratory findings but in the lessened fluid output, sometimes amounting to actual anuria.

I personally am opposed to the administration of a barium meal in any suspected abdominal pathology of obstructive nature, but am heartily in favor of the use of the x-ray as advanced by Case, of Chicago. The patient is examined, preferably in a standing position, and the relative levels of gas and fluids in moderate late cases are studied as soon as the plate is developed. Definite "herring-bone" appearance of the obstructed loop of the bowels should be looked for in early cases. This procedure takes but a short time, and in the hands of a skilled roentgenologist can be very valuable in the elucidation of obscure cases.

Intestinal obstruction is very often a bolt from the blue but it may have definite antecedents, the chief of which is a story of previous surgery, especially for pelvic disease or for appendicitis with drainage. These two types of operation are estimated to furnish from 45 to 55% of all cases of intestinal obstruction. The history of the present attack, with the character and chronology of the symptoms, is equally important. Then must come a physical examination sufficiently general to eliminate intercurrent disease, sufficiently detailed to investigate all areas of the abdomen, all hernia openings, all rectal pathology, and, in women, all pelvic pathology. A urinalysis and blood count should be routine, and blood may be taken for chemical study though there is no justification for delaying operation until this type of investigation can be completed. Finally all data must be carefully weighed and evaluated, there being always, well to the fore, the possibility that every patient suffering from intra-abdominal distress may be suffering from intestinal obstruction. One is reminded of Moynihan's statement: "Any acute abdomen not promptly relieved by a small dose of morphine indicates operation, particularly if pain lasts longer than 6 hours."

While the diagnosis is being considered, the important thing is to withhold any

treatment by opiates or purgatives. By increasing peristalsis that is already too active they serve to augment the distention of the over-tried bowel and to increase bacterial activity, while if the stomach, and very properly, refuses to tolerate them, the body as the result of increased vomiting is still further depleted of fluids.

The condition of the patient is the determining factor in deciding upon the type and extent of the procedure. In the first group he is seen early and operated on promptly, his condition is good, and simple relief of the obstruction most often suffices for a cure. The mortality rate ranges from 14 to 29.4%. In the second group he is seen later, his condition is fairly good, but toxemia is either an actual or strongly probable complication, and drainage of the bowels is done in addition to relief of the obstruction. Here the mortality is from 47 to 54%. In the third group he is seen late, indeed often he is frankly moribund, and his toxemia is so overwhelming that the primary obstruction is lost sight of. Operation is done only because a dying patient deserves his chance for life, slender though the chance may be. Drainage of the bowels, through the first presenting loop of jejunum, is the only procedure warranted. If the patient survives, and most often he does not, the primary obstruction can be dealt with at a later date. In this group the mortality is from 73.6 to 91%.

Operation for intestinal obstruction, I need scarcely point out, is any thing but a simple procedure. The utmost manual dexterity is necessary, for, as Bunnell says, every manipulation, necessary or unnecessary, is "a shove nearer the grave." The least that can be done is the safest for the patient. It may be a highly satisfactory thing to complete a perfect operation, but it is a highly unsatisfactory thing to complete it on a corpse, and these patients have a disconcerted way of dying on the table under one's hands. To speak very frankly, only an experienced surgeon should have a right to undertake operation for such a condition as this, in which knowledge means much, but in which wisdom, which is the application of knowledge, means even more. The actual operation varies from a simple ileostomy to a resection of many feet of intestines. Do as little as is consistent with the welfare of the patient.

In the average case of intestinal obstruction there is no time for rehabilitation of the patient, at least as we commonly understand the term. Miller says, "Each hour of delay increases mortality one per cent and your alternative is death or surgery." Two things, however, must not be omitted. Gastric lavage must be instituted and must be repeated until it returns clear. It is a wise precaution, too, to leave the tube in situ during an anesthesia, lest, when the glottic reflex is obliterated, the patient drown in his own secretions; or lest, later, he develop an aspiration pneumonia. Parenthetically, I might add that in spite of all arguments against, and all the advantages claimed for other types, my own preference was for a general anesthesia in these cases if the patient was not moribund. It seemed to me that the patient, always in shock and toxic, needing immediate relief without additional manipulation and trauma, could be cared for better under a general, than under spinal analgesia, or intravenous or local anesthesia. Now, however, I prefer spinal anesthesia; its perfect relaxation facilitates exploration and the danger of aspiration of regurgitated contents is reduced.

In the second place, hypertonic solutions must be promptly given, preferably by infusion to restore the fluid balance and molecular instability of the blood and to replace the lost chlorides; if loss can be demonstrated; otherwise isotonic saline, as suggested by Selling, Brill, Matas and others, may be employed instead. The use of saline solution, together with infusions of glucose and insulin, is continued after operation as long as the indications, based on the patient's clinical condition and the laboratory findings, warrant it. Other post-operative measures are employed according to the exigencies of the special case. In conclusion I desire to emphasize that prompt operation offers the only means by which the mortality of intestinal obstruction can be brought within reasonable limits.

---

---

SOUTHERN  
MEDICAL ASSOCIATION  
BALTIMORE  
NOVEMBER 17-20, 1936



# AINHUM

## (DACTYLOLYSIS SPONTANEA)

### A CASE REPORT WITH ROENTGENOLOGIC AND PATHOLOGIC FINDINGS\*

By

RUFUS HENRY ALLDREDGE, M. D.†  
Fairfield, Alabama

Ainhum, or dactylolysis spontanea, is a peculiar and mysterious tropical disease which is sometimes seen in the United States and other temperate climates. It occurs predominantly in adult colored men, affecting the little toes usually and having a tendency to be symmetrical. The disease is characterized by the presence of a long standing, constricting ring which encircles the affected member, at the digito-plantar fold, forming a fissure which gradually deepens, cutting off the circulation and finally resulting in spontaneous amputation of the toe.

This weird condition was first described by Messum in 1821.<sup>1</sup> Clark,<sup>2</sup> in 1860, however, was the first to describe the disease fully. Da Silva Lima<sup>3</sup> was also one of the first to give a complete description of the disease.

There seems to be slight differences of opinion in the literature as to the origin of the word ainhum. Clark reported the disease under the name of "dry gangrene of the little toe." Da Silva Lima observed the condition in Brazil, and states that it is derived from the Nagos word meaning "to saw or cut." Matas,<sup>4</sup> however, states that it is derived from the Negro patios of Brazil, meaning "a fissure."

Ainhum occurs most frequently in the colored races and is most common in Negroes from the West Coast of Africa, West Indies, South America and Brazil. It has also been reported in China and India but is rare in Europe.

\*From the Department of Orthopedic Surgery, Employees' Hospital, Fairfield—Service of Dr. H. Earle Conwell.

†Chief Resident Orthopedic Surgeon, Employees' Hospital.

1. Messum, G.: *Lancet*. April 25, 1821.

2. Clark: *Trans. Epidem. Soc.* 1: 105, 1860. (Quoted by Acton.)

3. Lima, F. G. DaSilva: *Gazetta Medica da Bahia* 1: 146 (Nov. 13) 1867. (Quoted by Bloom and Newman.)

4. Matas, R.: *The Surgical Peculiarities of the American Negro*, *Trans. Am. Surg. Assn.*, 14: 483, 1896.

Up to 1911, there had been thirty cases reported in the American literature as having been found in the United States. Most of these were from the Southern States.<sup>5</sup> Insofar as I am able to ascertain, there has been only one case reported from Alabama. R. C. Hill<sup>6</sup> of York reported this case in 1929. Unfortunately his patient did not submit to treatment and further study.

### ETIOLOGY

The true cause of ainhum has never been fully understood. There are many theories, however, as to its etiology. Many etiologic factors exist in this connection. First and foremost, the disease is most often seen in otherwise normal, healthy Negro men from 25 to 50 years of age. Many cases have been reported, however, in colored females, young and old. A few cases have been reported in white people. It may occur on any of the toes, but the little toes are most often affected. It is rarely seen involving the fingers. Wigley<sup>7</sup> reported a case of ainhum-like constriction of both little fingers in a girl 10 years of age which was associated with hyperkeratosis palmaris and plantaris. He did not definitely designate the condition as one of ainhum; however, the photographs shown bear a striking resemblance to true ainhum, as it occurs on the toes, except for the associated hyperkeratosis on the hands and feet.

The most important of the theories that have been advanced as to the cause of ainhum are as follows:

- (1). Trauma, constant irritation from underbrush while going barefoot, the wearing of rings on the toes, self mutilation, etc.
- (2). A lesion of leprosy (Zambaco Pacha<sup>8</sup>).
- (3). Chiggers (Wellman<sup>9</sup>).
- (4). Trophoneurosis (Matas<sup>4</sup>).

5. Bloom, David, and Newman, Ben.: *Ainhum—Report of a Case with Roentgenologic Findings and Review of Literature*, *Arch. Derm. and Syph.* 27: 783-793 (May) 1933.

6. Hill, R. C.: *A Case of Ainhum*, *New Orleans Med. and Surg. J.* 81: 509 (Jan.) 1929.

7. Wigley, J. E. M.: *A Case of Hyperkeratosis Palmaris et Plantaris Associated with Ainhum-Like Constriction of the Fingers*, *British J. Derm. and Syphilis* XLI: 188-191 (May) 1929.

8. Zambaco Pacha: *Ainhum and Leprosy*, *Trans. Int. Leprosy Conf.* 3: 45, 1897. (Quoted by Butler.)

9. Wellman, F. C.: *J. A. M. A.* 46: 637, 1906.

- (5). Congenital spontaneous amputation.
- (6). A form of localized scleroderma.
- (7). Heredity.
- (8). Syphilis.
- (9). Infection (Castellani and Chalmers).

thyroid function and a partial association with hypothyroidism. Findings in my case, however, did not show any such conditions to be present. After considering the available information at this time, it seems to me that the disease would best be considered as a trophoneurosis.



Fig. 2

Photograph showing ainhum of right little toe

While it is true that many cases of ainhum occur together with syphilis, the latter is the rule rather than the exception in many of the regions where ainhum is commonly found. Confusion still exists in the minds of some authors as to the connection with leprosy, but from the evidence at hand no positive proof has been advanced to show that leprosy has anything to do with the condition. Trauma in its various aspects may be a contributing factor but evidently is not the whole cause. Heredity has been noticed in isolated instances but is inconsistent. Acton,<sup>10</sup> after weighing the evidence at hand, thinks that this is a band scleroderma and is associated with a deficiency of the calcium content of the blood, indicating a deficiency of the para-

#### PATHOLOGY

Extensive pathological examinations were made by Wucherer, Schuppel, Dühring, Eyles, Unna, Weinstein and Castellani. There are slight variations in the microscopical descriptions but the essential findings have been the same.

Weinstein gives an excellent resume of the pathology found in his cases.<sup>11</sup> He states that "the epidermis is increased, the stratum lucidum slender, the papillary layer elongated and in the rete malpighii the pigment is found irregularly distributed. The constricting ring is composed of dense fibrous connective tissue covered by a layer of epidermis. The proximal parts show atrophy while the distal parts show degenerative changes. The corium papillae are

10. Acton, Hugh W.: Ainhum, a Band Scleroderma, *The Indian Journal of Medical Research*.

11. Weinstein, H.: *South. M. J.* 6: 65 (Oct.) 1913.



elongated, the surrounding capillaries are dilated and the perivascular lymph spaces are filled with corpuscular elements, especially young connective tissue cells.

"The blood vessels everywhere are numerous; the larger arteries are engorged, all the coats thickened by the connective

such as sweat glands, blood vessels, muscle and bone are all changed into connective tissue. In all there are evidences of impaired nutrition due to pressure, vasomotor and trophic manifestations."

Reports by others do not differ greatly from this. Spontaneous amputation usu-



Fig. 2  
Roentgenogram, showing bone changes in ainhum

tissue, leading ultimately to endarteritis obliterans. The smaller arteries show very much thickening of the adventitia and much perivascular infiltration. The veins are dilated, thickened but empty. The lymphatics are also dilated and the lymph spaces in a state of engorgement.

"In the bone there is a condition of rarefying osteitis, advancing from the periosteal side. The destruction in the interior is rapid, the cavities filled with a reticulum of connective tissue, blood vessels, numerous round cells and fat globules, the bone corpuscles being few in number. The ultimate result is the change of all parts into dense fibrous tissue.

"To summarize the pathological findings: We first meet a condition of inflammatory edema. Later on there is found a degeneration of original elements followed by atrophy. The highly organized tissue,

ally takes place through the middle of the phalanx, usually the proximal, or through an interphalangeal joint. The disease may be seen at any stage, and for this reason the pathological changes may be mild or advanced.

Roentgenographic examination reveals just what would be expected in a case of this kind. Findings here, as in microscopical sections, differ according to the stage of the disease. There is a rarefying osteitis of the bone involved. In advanced cases the entire phalanx may have disappeared. In observing the case being herewith reported I have noticed two conditions present which have not been mentioned before. There were associated exostoses on the terminal phalanges of the great toes, and the involved phalanx in the little toe not only shows the usual findings but also shows a definite elongation of the middle or in-

volved phalanx. The joint space of the terminal interphalangeal joint is also wider than normal, which is probably part of the process of atrophy. The coexisting exostoses, as mentioned above, are probably insignificant and coincident but it is of interest to note that the cases of Probst<sup>12</sup> and Facio<sup>13</sup> also have associated exostoses. It is doubtful as stated above if these findings are noteworthy, but they may be of interest.

#### SYMPTOMS

As previously stated the disease is seen predominantly in male Negroes. It most commonly affects the little toes but may affect any of them and rarely the fingers. The onset is characterized by the slow development of a narrow groove or fissure which gradually completely encircles the affected member. Pain is usually absent in the early stages but may become a prominent symptom late in the disease. Some cases, however, may go on to spontaneous amputation without pain. As a result of the constricting ring there is gradual strangulation of the digit and interference with the venous return causing a swelling of the part distal to the ring. Ulceration may or may not be present. These symptoms are so definite and characteristic that it is rarely confused with any other disease.

#### TREATMENT

Several early writers treated this disease by making longitudinal slits through the constricting band. It is now the consensus of opinion, however, that this conservative procedure is of no benefit in checking the progress of the disease. There is no doubt that many of these cases go on to spontaneous amputation and get complete relief without any treatment. It is now agreed that amputation of the toe is the only treatment to be recommended. However, in recent years, new forms of medical treatment have been advocated. Acton<sup>10</sup> recommends, in the early stages of the disease, large doses of thyroid, combined with par-

athyroid extract and calcium lactate. This is based upon his belief that the disease is a band scleroderma, and is associated with hypofunction of the thyroid and parathyroid glands, and a decreased blood calcium content.

Irgang and Alexander<sup>14</sup> used a single dose of 31 grains of sodium iodide intravenously in one advanced case with immediate relief of pain. The patient had untoward symptoms however and potassium iodide was substituted, which also had to be discontinued for the same reason. They recommend this treatment in patients who have severe pain but who refuse amputation. It would seem, however, that patients who have severe pain would submit to amputation, without any argument as was the case with the patient reported below. This type of treatment therefore does not seem to be justified.

#### CASE REPORT

F. S., a colored male aged 40 years, was admitted to the Employees' Hospital on April 22, 1935. He complained of severe pain in the right little toe for the past eight months, with a gradual change in the contour of the toe. About eight months previous to admission a "corn" appeared on the right little toe and in a few weeks he noticed a beginning furrow on the outside of the toe at the digito-plantar fold. The furrow or fissure gradually extended until it completely encircled the toe, becoming deeper. The pain became so severe that he could not sleep at night, for weeks, before he finally reported for treatment.

The patient was born and reared in Alabama. He was in France for ten months in 1917-1918. Otherwise, he had never been out of the State. He went barefoot as a child in the summer time until he was about 17 years of age. Except for this exposure, there had never been any undue injury to the feet. There had never been any disease of the feet or toes except for the usual "ground itch" of childhood, seen so commonly in the South. He had always been in excellent health and did not remember ever having been ill. He had always been a farm and industrial laborer.

His habits were usual for his race and social standing. No member of his family had ever had anything similar to his condition, nor had he ever seen or heard of a condition of this type before.

#### Physical Examination

The patient was a well developed, well nourished, full blooded Negro. He was of normal intelligence and was mentally alert. The hair was normal in amount, distribution and texture. The

12. Probst, Jacob S.: Ainhum, *Ann. Surg.* LXXXVIII: 885-889 (Nov.) 1928.

13. Facio, A. A.: A Review of Ainhum with Radiographic Demonstration of Its Bone Pathology, International Conference on Health Problems in Tropical America, Kingston, Jamaica. 1924. Page 533.

14. Irgang, S., and Alexander, E. R.: Iodide Therapy for Relief of Pain in Ainhum—Report of a Case. *Arch. Derm. and Syph.* 30: 508-509 (Oct.) 1934.



skin was moist, shiny and pliable. He weighed 178 pounds and was 5 feet 8 inches in height.

The right little toe was very striking in appearance. It was completely encircled by a deep constricting groove, just distal to the digito-plantar fold (Figures 1 and 2). The distal end of the toe was almost spherical in shape, greatly enlarged and rotated outward on the long axis about 90 degrees. The nail on this toe was small and atrophic, having almost disappeared. The toe was painful to any movement and appeared that it could easily be "broken off" at the groove. There was no ulcer formation. No other gross skin changes were present.

General physical examination revealed nothing out of the ordinary. Neurologic examination revealed no abnormalities. The pupils were equal in size, and reacted to light and accommodation. Other reflexes were normal. Blood pressure was 150 systolic and 90 diastolic. Heart and lungs were apparently normal in every respect.

#### Laboratory Procedures

The urine showed an occasional pus cell but was otherwise normal. Peripheral blood Wassermann was negative. Blood chemistry revealed the following: Blood sugar, 65 milligrams, N. P. N., 27 milligrams, and creatinine 1.5 milligrams. The complete blood count showed: Red cells 4,975,000; white cells 6,500; hemoglobin, 80 per cent; polymorphonuclear leukocytes, 50 per cent; large mononuclears, 10 per cent; small mononuclears, 36 per cent; eosinophiles, 4 per cent. A smear for sickle cell anemia was negative. Blood calcium was 11.5 milligrams and blood phosphorus 9 milligrams. Smears from the nose were negative for *B. leprae*.

Roentgenologic examination of both feet was made which revealed the following: There are striking soft part and bony changes in the right little toe. There is a ring like absence of soft tissue, around the middle phalanx of the right fifth toe which is practically complete down to the bone. There is marked atrophy of all the bones of the toe. The middle phalanx of the toe shows rarefying osteitis to a marked degree with elongation of the phalanx. Symmetrical exostoses are present on the medial borders of the terminal phalanges of the great toes (Figure 2).

#### Treatment

The involved toe was amputated with the use of  $\frac{1}{2}$  per cent novocaine. The usual disarticulation at the metacarpo-phalangeal articulation was performed. The patient was discharged the day following amputation, and the wound healed by primary intention.

#### Histopathology

The following is the report of Dr. Walter C. Jones, Pathologist: The isthmus of the specimen is composed exclusively of connective tissue, mostly of the fibrous type. The fibers are arranged parallel to the long axis of the toe and spread out fan-like as they pass beyond the constricted region. The rest of the specimen is made up of fat and connective tissue, in the center of which is a

moderate amount of imperfectly constructed bone. It consists of trabeculae, which contain calcareous material and which in many places show imperfect formation of cartilage. Blood vessels are very scant in number but normal in structure.

The free surface is covered with stratified squamous epithelium, which presents an extremely thick corneal layer. Sweat glands are very numerous but no sebaceous glands were seen. There is no leukocytic infiltration or other vascular abnormality. All of the tissues are exceedingly hard and compact and they do not stain readily. On the whole cells are not numerous but intercellular material predominates.

The pathologic picture is that of regression and atrophy; but no particular type can be designated.

#### Follow Up

The patient was seen again in February of 1936, almost a year after amputation. There had been no symptoms since amputation was performed. There was no evidence of the disease on any of the other toes or fingers. Physical and laboratory examination at this time revealed nothing different from that found on the first examination.

#### COMMENT

I have reported a case of ainhum, the second to be reported from Alabama, with roentgenographic, pathologic and laboratory studies. Syphilis and leprosy can almost positively be ruled out as etiologic factors in this case. No new theory is advanced as to the cause of the disease but attention is called to the fact that sickle cell anemia has not, heretofore, been looked for in these cases so far as I know. Even though it could not be demonstrated in my case it would be interesting, if it could be demonstrated in connection with ainhum, as chronic leg ulcers are frequently seen in sickle cell anemia.

Attention is also directed, for the first time, to coexisting exostoses in the bones of the feet in this and previously reported cases. Definite elongation of the involved phalanx is demonstrated in my case, which is also a new finding so far as I know in this disease.

#### BIBLIOGRAPHY

1. Butler, H. W.: Ainhum (Dactylolysis Spon-tanea), M. Clin. N. Am. 9: 1181 (Jan.) 1926.
2. Welch, R. S. G.: Ainhum, U. S. Naval M. Bull. 21: 350-355 (Sept.) 1924.
3. Harrower, Gordon: Ainhum Disease and the Anesthetic Type of Leprosy, Trans. of the Royal Soc. of Trop. Med. and Hygiene 29: 73-76 (June) 1935.
4. Sutton, R. L.: Diseases of the Skin. Fourth edition. C. V. Mosby Co. St. Louis, 1921.

# THE JOURNAL

OF THE

## Medical Association of the State of Alabama

### Editor-in-Chief

FRED W. WILKERSON.....Montgomery

### Associate Editors

M. Y. DABNEY.....Birmingham  
W. D. PARTLOW.....Tuscaloosa  
J. N. BAKER.....Montgomery  
DOUGLAS L. CANNON.....Montgomery

Please send in promptly notice of change of address, giving both old and new; always state whether the change is temporary or permanent.

### Office of Publication

519 Dexter Avenue.....Montgomery, Ala.

Subscription Price.....\$3.00 Per Year

October 1936

### TREATMENT OF CERTAIN CARDIAC CRISES

Ernestene<sup>1</sup> says that situations in which proper treatment, promptly instituted, may be directly responsible for the saving of life probably are encountered more frequently in patients with organic heart disease than in any other group of individuals. And he also holds that practically all of the measures of established value are of such simple nature that a physician can easily be prepared to use them at all times.

The author, speaking of advanced congestive heart failure, well says—"It happens not infrequently that a patient with congestive heart failure is first seen only after his condition has become critical. Usually, under these circumstances, the patient has experienced increasingly severe symptoms for days or even weeks. Examination reveals an exhausted, apprehensive individual in extreme respiratory discomfort, with orthopnea, cyanosis, engorgement of the jugular veins, an enlarged, tender liver and extensive peripheral edema. Hydrothorax and ascites may be present, and in many patients there is repeated vomiting. The cardiac rhythm may be regular or irregular; the most common type of arrhythmia observed is auricular fibrilla-

tion with a very rapid ventricular rate and a large radial pulse deficit."

"In situations of this kind, the first indication is for the administration of digitalis. Because a delay of even a few hours in obtaining the therapeutic effect of the drug may mean a fatal outcome, intravenous administration is necessary. It is important to bear in mind in this connection that when digitalis action is urgently needed, one must not rely upon intramuscular injection, and particularly is this true in the edematous patient." Ernestene goes on to point out how the intravenous administration of digitalis frequently produces remarkably prompt improvement in a patient critically ill with congestive heart failure and that, in auricular fibrillation, slowing of the ventricular rate is usually noted within five minutes and that within one-half hour there may be complete cessation of vomiting and much relief of dyspnea. He also advises that morphine be given immediately by hypodermic injection and that a second injection of morphine be given some hours after the first one. "Several hours' sleep frequently results in striking improvement in the general condition and morale of the patient." And he advises that, if hydrothorax or ascites are present in large amounts, the fluid be removed as soon as possible.

The author also thinks well of venesection, in the absence of anemia, in cases of severe myocardial failure, especially if there is cardiac asthma and pulmonary edema. He believes that from 250 to 500 cc. of blood should be withdrawn by venesection because "this may result in prompt and lasting relief, especially in patients who present engorgement of the peripheral veins." And he stresses the importance and value of the upright position in cardiac asthma.

For acute coronary occlusion "morphine should be given promptly, and, if necessary, in repeated doses. The initial dose of the drug should usually be  $\frac{1}{4}$  grain hypodermically, and subsequent injections of the same amount should be given at intervals of twenty to thirty minutes until the patient becomes comfortable. If an oxygen tent is available, the patient should be placed in it . . . nitroglycerine should not be administered, for it will have no ef-

1. Ernestene, A. Carlton: Emergency Management in the Crises of Heart Disease, Med. Clinics of N. America, 19: 1857 (May) 1936.



fect upon the pain and, by reducing blood pressure, it may further embarrass the coronary circulation."

For many years it has been repeatedly pointed out and stressed by pharmacologists, teachers and many clinicians that the average dose of digitalis was far too small, especially as given by physicians of the older school. Much progress toward correcting this error has been made, though digitalis is still oftentimes given in absurdly inadequate amounts. And it is certainly true that far too few practitioners have availed themselves of the excellent digitalis preparations now available for intramuscular and intravenous administration.

More prompt and effective use of these preparations, more frequent use of morphine and the other measures advocated by Ernestene will, in properly selected cases, undoubtedly save many lives. And the treatments recommended by him can be carried out away from great hospitals and medical centers. Indeed practicing physicians would do well to bear in mind the author's conclusion that "the diagnosis of these conditions is for the most part simple and certain; and if one is prepared to carry out the recommended therapeutic measures, he will not infrequently witness the recovery of a patient who at first sight seems hopelessly ill."

## DEPARTMENT OF PUBLIC HEALTH

### BUREAU OF LABORATORIES

James G. McAlpine, Ph.D., Director

#### CARRIERS\*

#### III. THE ROLE OF THE CARRIER IN CERTAIN DISEASES (Continued)

According to Coleman,<sup>1</sup> "The 'carrier' problem of the paratyphoid fevers is similar to that of typhoid fever. Paratyphoid bacilli have been found in the feces of persons exposed to infection as well as of convalescents and 'chronic' carriers." Park and Williams<sup>2</sup> point out that general invasion may take place with either Para A or Para B, and when this occurs, the bacilli may be found in the urine for long or short periods of time. Chronic carriers usually have foci of infection in the gallbladder with the consequence that the feces contain the bacilli.

The most extensive survey for the presence of carriers of paratyphoid bacilli in a population group was made by Krumweide.<sup>3</sup> He examined a regiment which

had been badly infected with paratyphoid A while in service on the Mexican border and found that nearly 4 per cent were healthy carriers. Zinsser and Bayne-Jones<sup>4</sup> state: "The carrier problem is practically the same (as in typhoid) and it seems logical to assume that the percentage of carriers compared with that of typhoid is approximately similar to the ratio of incidence between the two diseases."

In bacillary dysentery the carrier is a main factor in the dissemination of the disease. Whitmore<sup>5</sup> claims: "Chronic cases and carriers are of great importance in the spread of the infection, and are the means of carrying it over the winter or from season to season, and from place to place. The bacillus is not constantly present in the stools of carriers. . . . From 2 to 3 per cent of the cases become carriers after an epidemic of dysentery and these carriers, with the healthy carriers that may develop during the epidemic, are the great sources of infection." It is generally believed that the mild cases more often become carriers than the severe because the latter receive treatment. Park and Williams<sup>2</sup> claim that healthy "carriers may be equal to one-

\*Third in a series. The first appeared in the August issue.

1. Coleman, W.: *The Paratyphoid Fevers*. Nelson's Looseleaf Living Medicine. I. Thomas Nelson & Sons, New York, 1929.

2. Park, W. H. and Williams, A. W.: *Pathogenic Microorganisms*. 10th Edition. Lea & Febiger, Philadelphia, 1933.

3. Krumwiede, C.: *Fecal Examinations of a Regiment Infected with Bacillus Paratyphosus A with Special Reference to Normal Carriers*, J. Inf. Dis. 21: 147, 1917.

4. Zinsser, H., and Bayne-Jones, S.: *Textbook of Bacteriology*. Seventh Edition. D. Appleton-Century Company, New York, 1935.

5. Whitmore, E. R.: *Bacillary Dysentery*. Nelson's Looseleaf Living Medicine II. Thomas Nelson and Sons, New York, 1929.

fourth or even one-half of the number of cases."

The different types of the dysentery bacillus vary in pathogenicity and, therefore, vary in the kind of carriers produced. Carriers of the Flexner Y bacillus are often in good health. On the other hand those carrying the Shiga-Kruse bacillus are, as a rule, invalids.

---

## BUREAU OF PREVENTABLE DISEASES

D. G. Gill, M. D., Director

### COMMUNICABLE DISEASE REPORTING

The study of the prevalence and trend of any communicable disease is dependent on knowledge of the existence of the disease in question. This cannot be gained if physicians remain silent on cases occurring in their practice. It is the prompt reporting of communicable diseases by all physicians that enables health departments to foretell an oncoming epidemic. By the same token it is through this avenue that accurate information can be procured as to whether the particular disease reported is occurring within normal or expected prevalence. If some disease in a certain community increases over the expected number of cases and only a few of these are reported, the health department may conclude the occurrence is normal for that time of year—yet an epidemic may be in the offing. If this inadequate reporting continued, a serious epidemic might be in progress before health officials became aware of the fact.

Events in connection with the epidemic of acute anterior poliomyelitis that raged for several weeks in North Alabama are an example of good reporting. During the first few weeks of June reports of cases of poliomyelitis began to trickle into the Health Department. These seemed to indicate that a concentration of cases was occurring in marked contrast to previous years when little concentration had been shown. This change in prevalence gave the first clue and by subsequent investigations this Bureau was able to prognosticate an epidemic of poliomyelitis. This scoop on the news of poliomyelitis allowed the medical profession, in particular, and the public in general, to be apprised of the situation.

It allowed for watchfulness in the uninvolvement counties and the institution of measures of control in all counties of Alabama and the adjoining states.

However, this good reporting of cases of infantile paralysis is not maintained in other diseases except typhoid fever and diphtheria. Less than one-third of the cases of measles, about two-thirds of scarlet fever, and less than one-half of whooping cough are reported. Yet these diseases cause many deaths in infants and small children. It is safe to say some of the deaths could have been prevented by adequate reporting.

W. H. Y. S.

---

## BUREAU OF HYGIENE AND NURSING

B. F. Austin, M. D., Director

### HEALTH OF THE SCHOOL CHILD

The physician is in a position to make a distinct contribution to the health of the school child. In the medical examination of school children there is an avenue of approach to the subject. Ordinarily the county health officer makes this medical examination. It is necessarily hasty in nature because of the great number of children to be examined and the lack of time at the disposal of the health officer. It is the right of every school child to receive a thorough medical examination periodically, preferably each year. The services of the practicing physician should be sought in this endeavor. There should be united effort on the part of parent, teacher, physician, nurse and pupil to assure correction of all remediable defects.

When the medical examination is made the following items should be carefully checked by the examining physician and recorded:

1. *Age, Height and Weight*: Compare the average weight with that recorded for the same age and height. We know that familial characteristics must be considered when measuring variation from average weight, and do not give serious consideration to underweight of less than 10% or overweight unless more than 20%. We are more concerned with the question of growth than measuring according to a standard.

2. *Skin Disease and Vermin*: Impetigo, scabies and pediculosis are the conditions



which give greatest concern to those interested in the health of school children. Physicians, therefore, can aid materially by seeing that these conditions are treated until cured when they are found to exist, and that should be effected prior to entrance in school.

3. *Teeth*: It is not expected that a physician shall make a complete dental examination. Children should be referred to a dentist for this service. There are many children, however, who never have an opportunity to see a dentist. Obvious dental defects such as caries, sordes, pyorrhea and marked malocclusion should be called to the attention of those responsible for the health of the child. In considering the treatment of defects of the deciduous teeth the physician should be guided by the best judgment of modern dentists.

4. *Tonsils and Adenoids*: Every physician recognizes that just because a child has tonsils is no reason for recommending their removal. We also recognize that there are tonsils which are not perceptibly enlarged yet they are diseased. It is the diseased tonsil that is likely to cause serious results if allowed to remain. The same is true of adenoid tissue. It is, therefore, of great importance to the health of the child that a medical examination be made periodically for the detection of diseased tonsils and adenoids. Their removal should be strongly urged.

5. *Glands*: When making medical examination of a school child the physician should carefully check all palpable glands for enlargement. Observation for the detection of symptoms of hyper- or hypo-activity of the glands of internal secretion should also be made.

6. *Eyes*: In testing visual acuity careful consideration should be given to the history. Parent and teacher should be consulted. A good light should be thrown upon the test chart. The power of accommodation of the eye of the child should be given consideration in the test and all questionable cases referred to an oculist. Abnormalities of the eyes should be noted and if they are correctible it should be brought to the attention of the parents.

7. *Ears*: A greater number of children are hard of hearing than is generally realized. This defect causes them to appear

dull when they are not. It also prevents them from learning as they should. It is, therefore, of great importance to the education and physical welfare of the school child that the hearing is good.

8. *Nutrition*: In checking this item the examining physician must, of course, observe the texture of the skin, firmness of muscles and weight as compared to the average for height and age. Physicians can frequently cause the correction of nutritional defects by prescribing proper diet. In other instances, it is only a question of economics and the improvement of general diet will improve the nutrition of the children affected.

9. *Posture*: The habitual slouch of many children may be due to lassitude, poor nutrition, disease, poorly fitting clothing, improper seating arrangements, family characteristics or other causes. In any instance the examining physician should be prepared to recommend a remedy for the correction of poor posture in childhood.

10. *Heart*: Careful examination needs to be made of the heart, especially in those pupils who are to participate in exercises and strenuous games. The examining physician should regard the pulse before, immediately after and two minutes after exercise. He should hear the sounds of each valve of the heart with the stethoscope next to the skin of the pupil. Any irregularities or diseased condition of the heart and blood vessels should be called to the attention of the parents and teachers of children so affected.

11. *Lungs*: In the examination of the lungs the physician cannot rely solely upon physical signs. He must take careful consideration of the history, signs and findings. In cases where a diseased condition is suspected the tuberculin test should be made, specimens of sputum sent to the laboratory and if advisable the individual should be directed to report to a chest clinic for complete examination.

The physician must keep in mind that the school fits into but one part of a health program designed to produce mentally and physically sound human beings. This program covers the life of an individual from infancy, or before it, through old age. The physician is the councilor who should be most interested in the health program of

the individual. He can aid decidedly in promoting normal healthy adulthood through advising from the time of conception. He can stimulate parents to provide health essentials for their children and advocate that the child enter school with as nearly perfect health as it is possible to attain. The detection and correction of physical handicaps is the privilege of the physician. He can encourage children in the formation of correct health habits. He can fix in the mind of the laity that science and not superstition is the foundation of health. In administering preventive inoculations and vaccinations the physician has an excellent opportunity to teach that tomorrow's health may depend upon today's prevention.

The protection of the school child from acquiring diseases from others is an important duty of the school. The physician, however, takes the leading role in this program. He is the one who makes the diagnosis and recommends the proper procedure.

To summarize: The physician has the opportunity to contribute definitely to the health of the school child through: 1. Proper prenatal advice; 2. Health examinations and correction of defects; 3. Immunization; 4. Reporting and control of communicable diseases; 5. Advising parents, teachers and school children regarding the formation and practice of essential health habits.

---

## BUREAU OF SANITATION

G. H. Hazlehurst, C. E., M. C. E., Director

### CONDITIONING OF PUBLIC WATER SUPPLIES IN REFERENCE TO DISSOLVED CHEMICALS—IRON

Chemical conditioning of water for industrial use has long been practical. Boilers for power production have required better and better conditioned water as pressure was raised, and size increased. Humidifying, dying, and bleaching in the cotton industry require water specially treated.

In general, each industry requires waters of varying quality. With several industries to serve it is evident that a public supply seldom meets the requirements of all. However, the domestic consumer has certain requirements by which the desirability of the public supply is measured. The housewife is not satisfied with a water which stains porcelain fixtures, or clothes which are

washed. Too much curdling with the use of soap is objected to as red water is run into the bathtub. Odors are likewise objectionable, and the possible effects of the water on the human system are being thought of. From insisting upon a water supply which is safe the consumer has come to think in terms of a more satisfactory water from the physical and chemical standpoint.

Water conditioning is largely a matter of finance, for as treatment costs are added through plant construction and operation, as well as treatment processes and chemicals, the cost of the water per thousand gallons or per month is increased. It is only within the relatively few past years that the average consumer has been willing or able to pay for the added cost of securing a water which meets these refined demands. The larger part of the water used in a household would serve its purpose without extra treatment.

Iron is perhaps the most objectionable chemical constituent of water in the State. In many waters it is found as a natural element having been absorbed by the water. In other municipal supplies it is absorbed from the iron mains, pipes, or reservoirs. While the treatment in these two instances are different, the purpose is the same—to deliver to the consumer a water free of iron, or so nearly free that the objectionable qualities of iron are eliminated. A small amount,  $2\frac{1}{2}$  pounds in a million gallons of water, begins to cause objection and as the amount increases so do the objections. The presence of iron compounds in a water supply may give a rusty or red color to the water, or from pipe ends of low circulation the water may be black. Staining of cooking utensils, and formation of brownish films on glasses and bottles are other effects of iron-laden waters. A metallic taste may be detected and the possibility of other odors may be present.

Public water supplies must, in their early years at least, compete with the private well. When the public supply was inferior in chemical quality, even though superior in bacteriological purity, the tendency of the public was not to support the public supply but to rely on the private wells. To correct this condition the earlier treatment plants were installed. In the more recent supplies which have been built, the situa-



tion was realized and the municipalities have installed treatment works to make sure that, within their financial limitations, the public would subscribe to the use of the public supply.

The installation of treatment plants for iron removal is not a specific problem in public health but is indirectly so, inasmuch as it makes available a more desirable and safer water that will assure a greater number of users, thereby eliminating numerous private supplies which are potentially dangerous. The treatment of waters in Alabama for iron removal, where the iron is found in the water as derived from its source, consists in general of aeration, coagulation and sedimentation, filtration and possibly chlorination. Aeration followed by treatment with lime is first given the water for the purpose of changing the soluble iron to insoluble compounds. After proper mixing the water is next passed through a coagulating and settling basin where a majority of the iron compounds are settled out. Filtration is applied to assure a clean, sparkling, iron-free water, or one so low in iron as to be non-objectable; chlorination is applied last to assure a uniformly safe supply.

Where the water at its source is free of iron but absorbs it in the mains and waterworks appurtenances the carbon dioxide is eliminated or reduced by aeration and any remaining neutralized by lime. A protective coating is formed in the mains and pipes and the absorption of iron prevented. The water is rendered "non-active."

Where manganese and iron are found in combination, which is rare in Alabama, more complicated treatment is required.

The Engineers of the Health Department are constantly working with the officials and engineers representing the municipalities towards not only the improvement of the public water supplies bacteriologically but chemically to encourage the more general use of these supplies. A. N. B.

NEXT MEETING

BIRMINGHAM

APRIL 20-22, 1937

## BUREAU OF VITAL STATISTICS

Leonard V. Phelps, B.Sc., Director

### THE IMPORTANCE OF REGISTERING BIRTHS AND DEATHS

Births and deaths have been registered in the Bureau of Vital Statistics of the State Department of Health for 28 years. Many births, however, are never registered as is evidenced by the fact that hundreds of requests for birth certificates have been denied because the attendant at birth failed to register it as required by law. Although the completeness of reporting is 90 per cent, thereby enabling Alabama to be accepted in the official U. S. Registration Area, we should have practically 100 per cent reporting. It takes times and effort on the part of the parent, physician, midwife and undertaker. We can have it only through the cooperation of everybody concerned.

Recently a radio talk was presented on the subject by Dr. H. L. Dunn, Chief Statistician of the Division of Vital Statistics in the Bureau of the Census, Washington, D. C. His talk follows:

#### WHY REGISTER BIRTHS AND DEATHS?\*

*Announcer*—This is the 317th Science Service program which every Tuesday takes you to the Land of Science. Mr. Watson Davis, director of Science Service, is out of the city, so today's program will be conducted by Mr. Robert Potter, news editor of Science Service.

So, today we are going to find out what birth records and death records are good for. Is that right, Mr. Potter?

*Mr. Potter*—Yes. There are good reasons for keeping track of births and deaths of the millions of Americans. And some of the uses of those records are extremely important, it seems.

*Announcer*—A birth certificate is the best evidence for proving you were born. I've always understood that. And a death record—well, I'll leave it to you to straighten that out.

Ladies and gentlemen, Mr. Robert Potter of Science Service, the world's only syndicate devoted entirely to science.

*Mr. Potter*—To explain what birth and death records are all about, Science Service has asked Dr. Halbert Dunn to come here today. Dr. Dunn's title shows that he is our national expert on these important figures, for he is officially the Chief Statistician of the Division of Vital Statistics, in the Bureau of the Census.

Exactly what does Vital Statistics mean, Dr. Dunn?

\*A radio talk presented Tuesday, Aug. 11, 1936, under the auspices of Science Service, over the Columbia Broadcasting System.

*Dr. Dunn*—The meaning of Vital Statistics in the United States is limited to facts about births and deaths, although in some countries it involves disease statistics as well as marriage and divorce statistics.

*Mr. Potter*—Where is the Division of Vital Statistics located, Dr. Dunn?

*Dr. Dunn*—In the Bureau of the Census, Department of Commerce, in Washington. The Division of Vital Statistics is but one of a number of Divisions of the Census Bureau. Since 1850 information on births and deaths have been compiled. At first, these were collected in connection with the decennial census. Since 1900 these statistics have been gathered and published on a yearly basis.

*Mr. Potter*—Does the Census Bureau have agents in the States who collect birth and death statistics currently?

*Dr. Dunn*—No, indeed. The relationship between the Division of Vital Statistics in Washington and the State Bureaus of Vital Statistics which are located in the Public Health Departments of the States or cities represents one of the outstanding examples of cooperative effort between the Federal and local Governments.

This cooperation is entirely on a voluntary basis. Local registrars are scattered throughout the State so that they can be contacted directly by the doctors, midwives, undertakers, or citizens who file certificates with them. The local registrars of towns and counties send the birth and death certificates to the State Registrars.

The Federal Division of Vital Statistics pays for copies of the original birth and death certificates which are filed in the State offices. Its function involves the tabulation and analysis of the material contained in these copies. From them it publishes the National data on birth and death. The fact that all 48 States have been able to make uniform their procedures of collecting these data is an achievement of which we can feel proud.

*Mr. Potter*—So your office has nothing to do with the collection of the original certificates?

*Dr. Dunn*—Nothing more than to help the States in any way that we are able.

*Mr. Potter*—I certainly wish somebody had seen to it that my birth certificate was registered. Perhaps I had better start right now to overcome any possible difficulty I may have in getting a passport for a prospective trip to Europe.

*Dr. Dunn*—Others have experienced this difficulty. Perhaps you remember that when Will Rogers went abroad for the first time in 1926, he applied for a passport and was turned down because he had no birth certificate. He was annoyed with the delay and wrote an article in which he made his famous statement, familiar to many people throughout the country, that "When you see a boy running around with a pair of pants on, or without 'em for that matter, it is pretty good proof that he has been born."

This article of Will Rogers' hurt birth registration in the country. Consequently, early in 1934, a representative of the Bureau of the Census was authorized to interview Mr. Rogers and see if he would withdraw his statement. He changed it to, "When you see a boy running around with a pair of pants on, or without 'em for that matter, it is

pretty good proof that he has been born—but it does not prove when, where at, nor who to."

*Mr. Potter*—That's a good one!

*Dr. Dunn*—A proof of "where at" is the most important one of these three questions, because it is the means of establishing citizenship. It is embarrassing to find out upon return to your country that you can not reenter because you are not recorded as a citizen. Sometimes it costs a considerable sum of money and several days or weeks of time to establish the necessary fact. It is also a comforting thought as the American travels in foreign countries, to know that the protection of the home country is thrown about him.

*Mr. Potter*—Not all of us travel abroad. Is a birth certificate needed for other reasons, Dr. Dunn?

*Dr. Dunn*—Yes. Proof of the date of birth is needed throughout the entire life of the child and adult. In most communities in this country proof of age of the child is demanded before entry to school. In the environment of home, the child is likely to appear advanced mentally, and fond parents are apt to overstate his age in order to obtain his admission to school. Especially is this true when the birth date is a month or two removed from the required age limit.

As a child grows up, proof of the birth date is frequently demanded for other reasons. For instance, child labor laws necessitate proof of age before the youth can go to work. Practically all States, at the present time, have an age limit below which the child cannot drive an automobile.

The right to vote is also involved, particularly if a child who has just come of age is youthful in appearance. The right to marry is another instance in which proof of age is frequently demanded. The same thing is true for the right to enter Civil Service in either the State or Federal employ. Exemption from military service may depend upon the establishment of age outside of the army maximum limit.

*Mr. Potter*—How about proof of age for the new Federal social security benefits?

*Dr. Dunn*—At the present time, the necessity for proof of age to obtain old age benefits is rapidly becoming a paramount social need. With the passage of Social Security legislation, it has become necessary for hundreds of thousands of people to prove that they are 65 years of age or over before they can obtain the benefits of Social Security.

Since the majority of States did not enter the birth registration area until 1915, the population Census records of 1900 are being used in searches for proof of age on individuals for whom no birth certificate was recorded. In many instances the name of the individual cannot be located in these family records. If it is impossible to locate the doctor or midwife who attended the birth of such a person, and if no relatives are living who can testify to the date of birth, it is difficult for these old people to secure the benefits which are due them.

*Mr. Potter*—I had no idea that birth statistics were not recorded prior to 1915.

*Dr. Dunn*—Many States did record some of their births much earlier than 1915, but only a small per



cent. New Hampshire has birth records on file as early as 1640.

*Mr. Potter*—It looks to me as if everyone should find out whether he has a birth certificate on file. If he doesn't have one, he is apt to find himself in a difficult situation at sometime during his life.

*Dr. Dunn*—That's right! One of the principal uses of both the birth and death certificate is involved with the inheritance of property. Often the property is held in trust and proof of age must be obtained before it can be released.

Also the settlement of insurance claims or the legal execution of wills connected with the administration of estates are involved with the necessity of proof of death, proof of age, and sometimes proof of the cause of death. If the life insurance policy has been issued within a year, it is usually contestable. Likewise, a death certificate is needed before the payment of war risk insurance, and pension claims to widows and orphans.

*Mr. Potter*—How does one register a death certificate?

*Dr. Dunn*—The doctor in charge of the case is required by law to fill in the information as to the place of death and cause of death on the certificate. Before the body can be buried or moved from one district to another the undertaker must file the certificate with the local registrar.

*Mr. Potter*—Are birth certificates registered in the same way?

*Dr. Dunn*—Yes. If no physician or midwife is present, the parent gives the facts to the local registrar. This must be done within 10 days after birth and the certificate filed with the local registrar of Vital Statistics.

*Mr. Potter*—Is there any way that the family can know whether a birth certificate has been filed by the doctor?

*Dr. Dunn*—Practically all of the States send a Notification of Birth Registration to the family. This not only informs the parents of the fact that a certificate is on file, but gives them a chance to know whether these facts are filed correctly or not. It is important for the certificate to be filed within the first ten days after birth because if this is done the integrity of the record is not questioned in after years in a court of law. An application to file a deferred certificate later in life is so frequently associated with fraud that its authenticity is questioned by the court.

*Mr. Potter*—What kind of fraud?

*Dr. Dunn*—I know of one instance where individuals were smuggled into this country under the protection of a falsified birth certificate. The smugglers were finally apprehended because they used the same certificate repeatedly until it became tattered, thus arousing the suspicion of the immigration officials.

*Mr. Potter*—How does one file a deferred birth certificate?

*Dr. Dunn*—This process varies from State to State. In the States which are strictest, an affidavit is required from the doctor attending the birth, as well as from two members of the family.

*Mr. Potter*—It seems to me that it would be wise for every parent who does not receive a Notification of Birth Registration to find out from his lo-

cal registrar or his family physician what is wrong.

*Dr. Dunn*—Quite right! Every family should check this fact.

*Mr. Potter*—I would like to see a sample of this Notification of Birth Registration.

*Dr. Dunn*—I have one right here. A few of the States have their own forms of notifications. In an attempt to obtain a more attractive Notification of Birth—one which would be prized by the mother—the Bureau of the Census has designed a handsome new Notification form.

*Mr. Potter*—Are there any other reasons, Dr. Dunn, why registration of births and deaths is important to the individual citizen?

*Dr. Dunn*—There are many other ways in which the citizen makes use of birth and death information in an indirect fashion. The death certificate, for instance, plays an important part in the community health program.

The State Health Department protects the citizen by testing the food and water supply, and by controlling communicable diseases. Typhoid fever in a community may mean a polluted water supply. If smallpox appears in your town, the services of the doctors and teachers are enlisted in a campaign for vaccination. How people die, is a question of the utmost importance to the public health officer and the family physician. Inability of the public health service to obtain promptly information required on the death certificate may mean that the community will pay the price in precious lives.

*Mr. Potter*—I suppose that is the reason why the death certificate must be reported before the body can be buried.

*Dr. Dunn*—Precisely. From the public health standpoint, everything depends upon how soon the knowledge of a death from a communicable disease becomes known to the Public Health Service.

*Mr. Potter*—How about child health activities?

*Dr. Dunn*—The success of the child health program depends on a knowledge of the occurrence of birth. The Notification of Birth is usually taken to the family by the public health nurse. Unless the birth is registered the child cannot be visited, invited to attend clinics, nor included in an immunization campaign. The distribution of National funds available for child welfare work is based upon the percentage of births in the various States. A number of States last year lost their full proportion of these funds simply because a considerable proportion of the births in the particular States were not registered.

*Mr. Potter*—Are there other indirect uses of birth and death statistics which are important to the individual citizen?

*Dr. Dunn*—Yes, there are a number of social benefits derived from the tabulation and study of facts concerning births and deaths. For instance, the average citizen uses life insurance for the protection of his loved ones. The premiums for life insurance are based upon tabulations of the number of people dying according to their age, sex, race, and location. Statistics on cause of death form the basis for certain preferred risks which are used to calculate annuity premiums.

Another important social use for Vital Statistics is the forecasting of population growth changes, and studies such as the analysis of the reasons behind mounting traffic accident rates.

*Mr. Potter*—I wish to thank you, Dr. Dunn, for this valuable information as to why births and deaths should be registered. It seems to me that it is a subject of importance to every citizen in the country, from the standpoint of his own personal interest, the welfare of his children, the maintenance of community health, and his knowledge of the social structure in which he lives.

*Dr. Dunn*—Thank you, Mr. Potter. In conclusion, may I urge that you, as a citizen, ascertain whether a birth or death certificate has been filed for every member of your family. If you are not sure that the births and deaths of your family have been registered, write to your State Registrar at the State Capitol and request him to check it for you. Don't forget! Registration of your birth is proof of citizenship. Your interest in registration of births and deaths is proof of good citizenship.

## CURRENT STATISTICS

### \*PREVALENCE OF COMMUNICABLE DISEASES IN ALABAMA

1936

|                       | July | August | Estimated<br>Expectancy<br>August |
|-----------------------|------|--------|-----------------------------------|
| Typhoid               | 73   | 136    | 178                               |
| Typhus                | 46   | 79     | 12                                |
| Malaria               | 952  | 1259   | 737                               |
| Smallpox              | 0    | 1      | 1                                 |
| Measles               | 19   | 10     | 56                                |
| Scarlet fever         | 40   | 45     | 71                                |
| Whooping cough        | 46   | 24     | 80                                |
| Diphtheria            | 34   | 67     | 109                               |
| Influenza             | 7    | 22     | 28                                |
| Mumps                 | 49   | 54     | 23                                |
| Poliomyelitis         | 194  | 111    | 4                                 |
| Encephalitis          | 4    | 1      | 2                                 |
| Chickenpox            | 12   | 7      | 7                                 |
| Tetanus               | 7    | 12     | 6                                 |
| Tuberculosis          | 251  | 362    | 370                               |
| Pellagra              | 41   | 22     | 66                                |
| Meningitis            | 6    | 3      | 4                                 |
| Pneumonia             | 58   | 74     | 56                                |
| Syphilis              | 991  | 1059   | 168                               |
| Chancroid             | 10   | 13     | 8                                 |
| Gonorrhea             | 284  | 357    | 172                               |
| Ophthalmia neonatorum | 3    | 2      | 1                                 |
| Trachoma              | 0    | 0      | 1                                 |
| Tularemia             | 1    | 0      | 0                                 |
| Undulant fever        | 6    | 5      | 3                                 |
| Dengue                | 0    | 2      | 0                                 |
| Amebic dysentery      | 0    | 1      | 0                                 |
| Rabies—Human cases    | 0    | 0      | 0                                 |
| Positive animal heads | 68   | 82     | ...                               |

\*As reported by physicians and including deaths not reported as cases.

The Estimated Expectancy represents the median incidence of the past nine years. With the venereal diseases, clinic cases were not included prior to this year.

AMERICAN PUBLIC HEALTH  
ASSOCIATION  
NEW ORLEANS  
OCTOBER 20-23, 1936

## Woman's Auxiliary

Mrs. H. W. Gray  
State Publicity Chairman  
Mobile, Ala.

The following is a list of the State Auxiliaries, 1936-1937, their Presidents and activities:

1. Bessemer, Jefferson County—Mrs. R. E. Lilly, Hueytown, Bessemer. (19 paid members.)
2. Birmingham, Jefferson County—Mrs. Jerome Chapman, 3916 Niazuma Ave., Birmingham. (76 paid members.)
3. Gadsden, Etowah County—Mrs. O. R. Grimes, South 10th Street, Gadsden. (10 paid members.)
4. Talladega, Talladega County—Mrs. D. P. Dixon, Talladega. (14 paid members.)
5. Anniston, Calhoun County—Mrs. W. M. Salter, 1108 Woodstock St., Anniston. (32 paid members.)
6. Mobile, Mobile County—Mrs. J. F. Rowe, 53 Bienville Ave., Mobile. (70 paid members.)
7. Huntsville, Madison County—Mrs. M. E. Moorman, Huntsville. (20 paid members.)
8. Albertville, Marshall County—Mrs. Albert Finlay, Guntersville. (3 paid members.)
9. Carbon Hill, Walker County—Mrs. Clarence Gilder, Carbon Hill. (Not active.)
10. Butler, Choctaw County—Mrs. H. H. Mason, Butler. (5 paid members.)

The Jefferson County Medical Society was entertained at the Buffalo Rock plant, May 12th, 1936, with Mrs. W. B. Majors as hostess, and co-hostesses, Mrs. George Graham, Mrs. D. F. Talley, Mrs. J. E. Garrison, Mrs. B. F. Posey, Mrs. B. S. Branham, Mrs. Sam Wallace, Mrs. James Becton and Mrs. C. F. Lewis.

Jefferson County was the only one that had a Doctors' Day program; this day being celebrated on this program. Mrs. Wood read an appropriate poem, "The Surgeon's Hands." The candle lighting service followed with talks about each Doctor honored.

Mrs. Talley for Dr. W. E. B. Davis,  
Mrs. Gaston for Dr. Bozeman,  
Mrs. Linn for Dr. W. C. Baldwin,  
Mrs. Parsons for Dr. Jerome Cochran,  
Mrs. Hargis for Dr. Gorgas,  
Mrs. Allgood for Dr. John Wyeth,  
Mrs. Board for Dr. Peter Bryce,  
Mrs. Marion Davidson for Dr. A. P. Aylett,  
Mrs. Huey Green for Jane Todd Crawford,  
Mrs. Little for Dr. Marion Sims,  
Mrs. Goodall for all living doctors.



Mrs. Huey Green, Chairman of the Health Contest, reported that the Pratt City School won the cup for the third year for the most conspicuous health work. Mrs. Seale Harris suggested that some of the children from the Pratt School be asked to put on a health program at some future date for the Auxiliary. Mrs. Chapman made an inspiring talk to the Auxiliary concerning the work next year.

The new officers for the coming year were elected as follows:

Mrs. Jerome Chapman, President,  
Mrs. Webster B. Majors, Vice-President,  
Mrs. W. S. Chapman, Recording Secretary,  
Mrs. W. B. Rountree, Treasurer,  
Mrs. E. D. Lineberry, Treasurer-Elect.

The Bessemer Medical Auxiliary of Jefferson County held its last meeting on May 13th, which was their Public Relations Meeting. It was a luncheon meeting at the Roosevelt Park Club House, having as guests the Presidents of all the Civic Clubs in Bessemer. There were about fifty women present. Mrs. G. W. Waller, retiring President, welcomed the visitors and Mrs. Fred Denson introduced the speaker, Dr. J. R. Garber, who spoke on Social Medicine. After a musical program, Mrs. Lilly, the President for the coming year, was introduced and spoke on her plans for future work.

At the last meeting of the Gadsden Auxiliary of Etowah County, the election of new officers was held, and the results were as follows:

Mrs. O. R. Grimes, President,  
Mrs. L. A. Kilpatrick, Vice-President,  
Mrs. Frank McCorkle, Treasurer.

The Talladega Medical Auxiliary held its last meeting on June 17th. Mrs. Hurley Knight presided in the absence of the retiring President, Mrs. C. L. Salter. Service projects were discussed. A motion was adopted to have the Auxiliary service plans outlined and presented to the Medical So-

ciety for approval. New officers for the year were elected as follows:

Mrs. D. P. Dixon, President,  
Mrs. J. H. Hill, Vice-President,  
Mrs. Hurley Knight, Secretary and Treasurer.

The Woman's Auxiliary of Calhoun County at Anniston held election of officers at their last meeting. The new officers are as follows:

Mrs. W. M. Salter, President,  
Mrs. W. H. Boozer, First Vice-President,  
Mrs. I. Levi, Second Vice-President,  
Mrs. Jerre E. Watson, Corresponding Secretary,  
Mrs. G. G. Woodruff, Recording Secretary,  
Mrs. A. M. Chilton, Treasurer,  
Mrs. Hal Cleveland, Historian.

The Woman's Auxiliary of Mobile County held its last meeting in May. The meeting was in the form of a Tea sponsored by Group No. 3. The business meeting held prior to the party resulted in the election of the following officers, who will serve the Auxiliary during the next year:

Mrs. J. F. Rowe, President,  
Mrs. V. H. Hill, First Vice-President,  
Mrs. G. W. Newburn, Second Vice-President,  
Mrs. Clarence V. Partridge, Recording Secretary,  
Mrs. G. O. Segrest, Corresponding Secretary,  
Mrs. S. H. Stephens, Treasurer,  
Mrs. C. C. Perdue, Historian.

Mrs. R. P. Lester, retiring President, presided and gave an interesting report of the activities of the Auxiliary during the past year. Mrs. L. W. Roe, State President, gave a report of the convention held in Montgomery and chairmen submitted reports. After the business meeting a social hour was enjoyed. Several new members were introduced. About forty members and guests attended.

From the National comes the message: Education of ourselves and others in matters directly affecting those connected with the medical profession will be stressed throughout the year. Untiring, too, will be our efforts to enlarge the circulation of Hygeia so that this health magazine may carry its message to as many people as possible.

## Book Abstracts and Reviews

**The American Medical Profession, 1783 to 1850.** By Henry Burnell Shafer, Ph. D. Studies in History, Economics and Public Law No. 417. Columbia University Press, New York City, publishers. 1936. 271 pages. Cloth \$3.25.

This volume is one of a series of studies in history and economic law edited by the Faculty of Political Science, Columbia University. Written by a doctor of philosophy rather than a doctor of medicine it shows a certain lack of understanding of those details which to a physician will be most important.

The author describes the status of medical practice during the period between the end of the Revolutionary War and the middle of the eighteenth century. At the beginning of this period, few practicing physicians had had any formal training. There were only two medical schools in the entire country. There were no medical journals, few medical societies. The care of parturient women was in the hands of midwives. There was little surgery except such traumatic surgery as was made necessary because of wars, for at that time there were naturally no anesthetics and no sepsis. Dentistry was a part of general medicine. Prescriptions of the day consisted of concoctions of innumerable herbs. There was no ergot, no quinine, no morphine. One inoculated with variolus to prevent smallpox. It was a time when therapy consisted largely of blood-letting, physicking and vomiting. Gonorrhea then was considered as a primary form of syphilis.

While the volume may serve as a source of information for educators, historians and economists, it will prove rather boring to the average physician. The chapter on medical ethics and medical fees of that period will probably prove more interesting than the general run of other subjects.

C. K. W.

\* \* \*

**Surgical Clinics of North America:** Issued serially, one number every month. Volume 16, Number 3, New York Number—June 1936. 277 pages with 79 illustrations. Per Clinic year February 1936, Paper \$12.00; Cloth \$16.00 net. Philadelphia and London: W. B. Saunders Company, 1936.

This number of "Surgical Clinics Of North America" is composed of articles by various men located in New York City.

There is an excellent "Symposium on Surgery for Intractable Pain," consisting of four articles. The article, "Neuro-Surgical Measures For Relief of Pain," by Dr. Byron Stookey, is written in a very enlightening fashion. Dr. Stookey stresses the importance of dorsal root section in order to secure total and permanent anesthesia for all forms of sensation. Some of the procedures which he advocates can be performed by the general surgeon, but most of the major procedures seem better taken care of by the neuro-surgeon. It is a good cross section of the subject.

An article by Dr. Carnes Weeks on "Total Thyroidectomy for the Relief of Pain in Angina Pectoris" is also of distinct value. This article is based on the work of Blumgart on the "Velocity of Blood Flow in Various Conditions." This procedure would seem more rational for this type of pain than does the sympathetic section, because of the fact that the work done by the heart becomes dis-

tinctly lessened. There have been 100 thyroidec-tomies reported as having been done for anginal pain. The results have been reported as very favorable. These cases have been reported from 26 different clinics.

An article by Dr. Henry W. Cave based on "The Ober Operation For Sciatica Pain" contains some valuable illustrations and observations. The importance of correct diagnosis is stressed.

Dr. Frank L. Meleney advocates "Zinc Peroxide For Certain Surgical Infections." He reports a number of rather striking cases.

Dr. Charles Gordon Heyd discusses "Surgical Considerations of the Obese and the Lean Type." The article contains much general information.

There are several articles dealing with orthopedic subjects. In one of them Dr. Philip D. Wilson discusses the treatment of and the prognosis of "Slipping of the Upper Femoral Epiphysis." He is confident that an open operation, with accurate reduction and fixation by a Smith-Petersen nail, is the method of choice.

There is an article by Dr. Philip C. Potter on "The More Common Infections of the Hand," which is of value to anyone.

Dr. Morris K. Smith discusses "Diseases of the Thyroid." This is always an interesting subject and in this article particular stress is laid on medical, x-ray and operative treatment.

"The Complications of Gastro-Enterostomy" are well discussed by Dr. Richard Lewisohn. The technique of the application of a Murphy button in high stomach resections is discussed in detail.

There are a number of other valuable articles and the usual value of the Surgical Clinics seems continued.

J. L. B.

\* \* \*

**A Text-Book of Pathology:** By W. G. MacCallum, Professor of Pathology and Bacteriology, The Johns Hopkins University, Baltimore. Sixth Edition, entirely reset. 1,277 pages with 697 illustrations. Philadelphia and London. W. B. Saunders Company, 1936. Cloth \$10.00 net.

The study of pathology may be a dull and monotonous task dealing abstractly with the appearance of diseased tissues and organs as found in museums and postmortem rooms, and as viewed through the microscope. On the other hand, pathology may be a most fascinating subject, correlating the symptoms of illness with the underlying disturbance in the organs and tissues of the body. The study of pathology may be as fascinating as the reading of the last chapter of a good mystery story in which all the unsolved problems are clarified at one master stroke. So at the end of a life the pathologist may observe the various changes wrought by nature through time, infection, malnutrition and injury. Whether a course in pathology is of the former type or the latter depends to a large extent upon the instructor and to an equal extent to the text-book. If the author regards pathology as a close ally of clinical medicine, the medical student will realize at once the practical side of the subject and will find a real fascination in studying the direct and indirect effect of the various forces which attack man's body. The one characteristic of MacCallum's text which entitles it to widespread use as a teaching volume is a close correlation between pathology and the clinical side of medicine.



There are few rivals to assail MacCallum's claim as the best text-book on the subject of pathology. The German volumes, though extremely well written, lack the beautiful illustrations with which MacCallum's abounds.

In the new edition, revision has been most radical in the chapters dealing with endocrine disturbances and diseases of metabolism. Chemical pathology is given a much more prominent place than in the previous editions. C. K. W.

\* \* \*

**A Text-Book of Physiology, for Medical Students and Physicians.** By William H. Howell, Ph. D., M. D., Sc. D., LL.D., Emeritus Professor of Physiology in The Johns Hopkins University, Baltimore. Thirteenth edition, thoroughly revised. 1,150 pages with 308 illustrations. Philadelphia and London: W. B. Saunders Company, 1936. Cloth \$7.00 net.

Physiology bears to the practice of medicine the same fundamental relation that anatomy bears to surgery. One cannot exaggerate the importance of a firm ground-work in physiology and the medical student should do well to devote as much time to this study as to memorizing the anatomic details.

In 1920 the reviewer used Howell's physiology as a text-book. It had been in use for several years before, it is still in use today and will probably remain, like Osler's "Practice of Medicine," a classic with a permanent place in our teaching library. The fact that it has undergone sixteen editions is ample proof of the fact that it has filled extremely well the need for a good text-book of physiology. If any unfavorable criticism can be offered, it is only this—that the author presents his subjects primarily from the standpoint of a physiologist and only secondarily from the point of view of the physician. Unless some practical physiology will be written at a later date which is complete in all details, Howell's volume will probably remain the standard text-book. The instructor in physiology might do well to supplement his course with one of the applied physiologies but he will be unwise to substitute the latter for a volume of Howell's.

In bringing up to date the present or sixteenth edition, the greatest changes made by the author have been in the field of biochemistry.

C. K. W.

\* \* \*

**A Manual of Pharmacology:** By Tora'd Sollmann, M. D., Professor of Pharmacology and Materia Medica in the School of Medicine of Western Reserve University, Cleveland, Ohio. Fifth edition, entirely reset. 1,190 pages with 22 illustrations. Philadelphia and London: W. B. Saunders Company, 1936. Cloth \$7.50 net.

Sollmann's Manual of Pharmacology is intended to serve both as a text-book and as a reference volume. In the former capacity, it possesses the disadvantage of great length, with more details than could possibly be mastered by any medical student. As a reference volume, however, it fills a need that can be met by no other volume. The United States Pharmacopeia sets the standard of purity of accepted drugs. The National Formulary sets standards of purity of drugs not accepted by the Pharmacopeia. Gutman's volume deals with non-official remedies but presents only the claims of the manufacturer. Bastedo's volume covers much of the same field as Sollmann's but with greater emphasis on physiology and on laboratory

experiments on different drugs. Beckman and Glendenning deal primarily with treatment. Sollmann deals with useful drugs—their source, chemistry, dosage, pharmacologic actions, untoward effects and methods of administration. At the present time, with the tremendous number of new drugs that appear on the market, a volume dealing with these topics is almost a necessity to careful practice.

In the new edition are included the following new topics: agranulocytosis, amebicides, amino-acetic acid, anterior pituitary and sex hormones, arsenoxide, atabrine, cyanide antidotes, cyclopropane, divinyl ether, ephedrine, ergot, histidine, iron therapy, oxygen therapy, parathyroid, phenylhydrazine, sodium morrhuate and vitamins.

C. K. W.

\* \* \*

**A Text-Book of Obstetrics:** By Edward A. Schumann, A. B., M. D., F. A. C. S., Professor of Obstetrics, School of Medicine, University of Pennsylvania; Surgeon-in-Chief, Kensington Hospital for Women; Gynecologist and Obstetrician to Philadelphia General and Memorial Hospitals; Obstetrician to Chestnut Hill Hospital; Consulting Gynecologist to Frankford, Jewish, Burlington County and Rush Hospitals. 780 pages with 581 illustrations on 497 figures. Philadelphia and London: W. B. Saunders Company, 1936. Cloth \$6.50 net.

Fortified by years of clinical and teaching experience and personal experience in the care of thirty thousand obstetric cases, both in the hospital and in the home, Schumann has succeeded in presenting a text-book featured less by unique material than by clear presentation of the accepted facts of obstetric science. The book is ideally suited as a text-book for teaching, since directions are so specific and given in great detail. Especially practical is the chapter on the management of pregnancy.

The new biologic test for pregnancy is described in detail. The various complications of pregnancy are given ample consideration. The local diseases, as well as general maternal diseases which influence the outcome of pregnancy, are discussed primarily from the point of view of the obstetrician. In the chapter on the toxemias of pregnancy are included all modern forms of therapy, plasmaphoresis and the intravenous use of gum acacia being described in detail. The indications and methods of using the forceps are beautifully presented. Those who do obstetrics will find this volume refreshingly different from the usual text-book, conveying on some matters an unfamiliar but valuable view point, presenting others with excellent practical suggestions.

A. E. T.

\* \* \*

**Arthritis and Rheumatic Disease:** By Maurice F. Lautman, M. D., Consultant to the United States Public Health Service Clinic and Director of the Department for the Study of Arthritis, Levi Memorial Hospital, Hot Springs, Arkansas. Whittlesey House, McGraw-Hill Book Company, Inc., New York and London. 177 pages. Cloth \$2.00. 1936.

If you have ever tried to make sense out of the chaos of literature dealing with the subject of "rheumatism" or if you have ever tried to explain to one of your arthritic patients the nature of his condition and the reason for your many hygienic suggestions, you will welcome a book like Lautman's. Though written primarily for the two or three million Americans who are afflicted with arthritis, it should appeal equally well to the phy-

sician because of its simple and concise statements. It presents one of the clearest pictures of chronic arthritis that the reviewer has ever had the privilege of reading. The book deals with the nature of chronic arthritis, its symptoms, its clinical course and its treatment. C. K. W.

\* \* \*

**Synopsis of Diseases of the Heart and Arteries.** By George R. Herrmann, M. D., Ph. D., Professor of Clinical Medicine, University of Texas. The C. V. Mosby Company, publishers, St. Louis, Mo. 344 pages with 88 illustrations and 3 color plates. 1936. Cloth \$4.00.

From his notes on lectures to his medical students, the author has taken the material for this volume. It is written primarily for medical students and the general practitioner and is not intended as a treatise for the specialist. Though the material is considerably condensed, the volume exceeds three hundred pages. It really covers more than the usually limited field of heart disease for he considers the reaction of the heart to such varied conditions as thyroid disturbances, diabetes, acute infectious diseases, nephritis and tuberculosis. Unlike most manuals, it is well illustrated and unlike most manuals it is intended more for careful study than for quick reference.

The terminology and classification of the diseases of the heart as used throughout this volume are those approved by the American Heart Association.

For students this book is highly recommended. For internists it is probably better suited than for the general practitioner for whom it was intended. C. K. W.

\* \* \*

**Disinfection and Sterilization:** By Ernest C. McCulloch, M. A., D. V. M., Ph. D. Philadelphia: Lea and Febiger, 1936. Price \$5.50.

Beginning with the evidence of the existence of osteoarthritis in the femur of *Pithecanthropus erectus*, 500,000 years ago, more or less, Dr. McCulloch traces the development of empirical and scientific control of the microscopic life so intimately connected with human existence, including contributions published in 1936.

This is, indeed, a comprehensive and illuminating work, and is presented in a style agreeable alike to the novice in bacteriology, sanitary science, or nursing, and to those professionally engaged in these vocations.

The work may be generally divided into two phases: (1) discussions of the effects upon microbial populations of natural agencies, the body fluids and secretions, radiant energy, temperature, and other physical and chemical agents; and (2) discussions of the practical applications of these phenomena.

The surgical assistant and the laboratory technician will find of interest the discussion of sterilization by means of heat, as will the canner and the milk plant operator, and inspector; the bottler of carbonated beverages will profit by a reading of the chapter on the effect of alkalis; the physician will find the discussion of the effect of the heavy metals and their salts of interest; and the sanitary engineer will find simplified discussions of water, swimming pool, and sewage treatment.

As a guide to the active sanitation officer or nurse, or as a reference for administrators in pub-

lic health, who are called upon to issue specific instructions and to determine policies, this work is recommended. C. A. A.

## Truth About Medicines

### ACCEPTED DEVICES FOR PHYSICAL THERAPY

The following devices have been accepted by the Council on Physical Therapy of the American Medical Association for inclusion in its list of accepted devices for physical therapy:

**B-K Inhalator.**—This device consists of a mounting to which may be attached two cylinders each about 18 inches long, containing a mixture of oxygen and carbon dioxide under high pressure. Connected with the valves is a high pressure gauge reading to 150 atmospheres, the purpose of which is to enable the operator to judge how much of the content of a cylinder has been used. The valves are so arranged that one cylinder may be held in reserve while the other is being used, and cylinders may be changed without discontinuance of the operation of the apparatus. Bishinger-Koehler Manufacturing Co., Inc., Pittsburgh.

**Holmspray Atomizers.**—In view of the satisfactory results obtained with these units, the Council on Physical Therapy has voted to accept the following Holmspray Atomizers: Prescription Atomizer No. 525; Prescription Atomizer No. 535; Prescription Atomizer No. 545; Nasal Atomizer No. 575; Throat and Nasal Atomizer No. 585; Throat and Nasal Atomizer No. 600; Throat and Nasal Atomizer No. 600-G; Atomizer No. 602; Throat and Nasal Atomizer No. 602-G; Nonspil Throat and Nasal Atomizer No. 612; and Nonspil Nasal Atomizer No. 611. T. J. Holmes Company, Inc., Chartley, Mass. (J. A. M. A., September 5, 1936, p. 790.)

**Model J Diathermy and Coagulator.**—This machine is recommended by the manufacturer for medical and surgical diathermy. Tests made of the machine for power input and output, and for its spark gap and transformer temperature rise were in conformity with the standards for diathermy machines previously established by the Council. The machine was found to coagulate, desiccate and fulgurate satisfactorily and



develop sufficient heat for use in medical diathermy. The Liebel-Flarsheim Company, Cincinnati. (J. A. M. A., September 19, 1936, p. 967.)

Beck-Lee Short Wave Diathermy Machine.—This machine is recommended for medical and surgical diathermy. It is a two-tube machine having a modified circuit of the push-pull type. The unit was tested in a clinic acceptable to the Council for a period of three months. It gave satisfactory service both for medical and surgical diathermy. Burns may be produced by this or any other short wave machine, but they may be avoided by ordinary precautions. Beck-Lee Corporation, Chicago. (J. A. M. A., September 26, 1936, p. 1052.)

#### PROPAGANDA FOR REFORM

General Decision on Allowable Claims for Wheat Bran.—On the basis of the evidence reviewed, the Council on Foods has considered the place of wheat bran in the human diet and has adopted the following general decision: (1) Bran may be useful as a source of bulk in the diet. The position of the Council in regard to "Constipation Statements in Lay Advertising for Roughage Foods and Bran" (The Journal, Nov. 5, 1932, p. 1605) is reaffirmed. Any reference in labels or advertising directed to the public regarding the content of bulk or crude fiber cannot be permitted unless there is reproduced the complete statement in the Committee Decision referred to, regarding a permissible claim for a roughage food. It is not permissible to advertise the use of bran in the treatment of constipation "due to insufficient bulk." This statement by itself encourages self treatment. (2) The iron content of untreated bran is high. Special claims for bran as a source of iron in the diet cannot be recognized, however, until definite evidence is obtained and accepted by the Council to show that the iron of untreated bran is available to the human body and, in the amounts which might ordinarily be ingested, contributes an appreciable portion of the daily requirements. If iron salts should be added in the preparation of bran for human consumption, the presence of added iron should be declared on the label, in accordance with present regulations of the Council. (3) The amount of vitamin B<sub>1</sub> in bran is insufficient

to permit any special claims therefor. (J. A. M. A., September 12, 1936, p. 874.)

"Subenon" for Arthritis and the American Chemical Society.—For several years the annual sessions of the American Chemical Society have been accompanied by extraordinary publicity in the lay press concerning new chemical discoveries applicable in the field of medicine and particularly for the treatment of disease. This year, however, even before the opening of the annual session of the American Chemical Society, newspapers throughout the United States carried a story, emanating apparently from the publicity department of the American Chemical Society, indicating that a new specific had been developed for the treatment of rheumatism and arthritis. The item submitted to the press stated that "a compound which curbs arthritis, economically the most devastating of all chronic diseases, was reported by Dr. Herman Seydel (President Seydel Chemical Co., Jersey City, N. J.)." It was said that "the new compound involving the medicinal application of benzoates, has proved effective in clinical tests covering two years at the Jersey City Medical Centre." Furthermore, Herman Seydel, Ph. D., reported that "in this calcium double salt of benzyl succinic and benzoic acids we offer the solution of an age-old problem. It remains for the medical profession to adopt it and employ it properly." Thus the speaker to appear before the American Chemical Society put the medical profession of this country squarely "on the spot" with a demand that it use his proprietary remedy. The secret behind this is, of course, the fact that the Seydel Chemical Company is a manufacturing organization which specializes in the manufacture of "benzoic compounds." In his statements "Dr." Seydel mentioned a favorable experience with the treatment at the New York Postgraduate Hospital. The superintendent of that institution, W. B. Talbot, telegraphed protesting reference to the New York Postgraduate Hospital in the newspaper reports of Herman Seydel; that the hospital had used experimentally his product "Subenon" but found it useless in arthritis; and that no favorable reports had been given out from this hospital about Subenon. As the publicity associated with "Dr." Seydel's exploitation of his product

came to newspapers with the sponsorship of the American Chemical Society, a well known organization presumed to be composed of scientific men subject to the usual ethics which control scientific workers, press associations and newspaper cannot be condemned if they failed to recognize the definitely commercial background and effect of this item. Neither can thousands of unfortunate sufferers from arthritis be condemned if in response to this item they demand of their physicians that they be given opportunity to test this unestablished drug. The American Chemical Society cannot dodge its responsibility in this case. It is neither within its province nor within its competence to give critical judgment on the treatment of disease. If it wishes to maintain the respect of the medical profession and the public, the American Chemical Society cannot permit itself to be used as an agent for unestablished proprietary remedies in the exploitation of the sick. (J. A. M. A., September 12, 1936, p. 878.)

Seydel Arthritis Treatment.—The Aftermath.—The tempest created by the premature publicity for the proprietary product promoted by Seydel through the American Chemical Society session in Pittsburgh has subsided. The paper of Seydel was read in a closed meeting of the American Chemical Society. Following a discussion of the paper a statement was issued by Dr. Edward Bartow, president of the American Chemical Society, Dr. Thomas Midgley, chairman of the board of directors, and Dr. Norris Shreve, chairman of the division of medicinal chemistry, jointly with Dr. Leech, Director of the Bureau of Foods, Drugs and Physical Therapy of the American Medical Association. This statement said:

In the discussion it was pointed out that much more work is necessary before the product can be considered as of established value. Representatives of the American Chemical Society and the American Medical Association agreed that the difficulties which have ensued in the past will be eliminated in the future.

The Journal of the American Medical Association commends the stand taken by the American Chemical Society in the control of its future publicity and readily offers its facilities to reputable organizations that seek information on topics definitely

within the medical field. (J. A. M. A., September 26, 1936, p. 1056.)

Ru-Mari.—The Bureau of Investigation reports that it has recently received many inquiries requesting information on a product that is sold in England and the United States under the trade name "Ru-Mari." Ru-Mari is one of a list of products with the "Ru" prefix sold by Ru-Mari, Ltd., First Avenue House, High Holborn, London, W. C. 1. Other Ru-Mari products advertised in England include "Ru-Mex," described as a "pain-relieving lotion for external application, including headaches, sprains, strains, sunburn, open wounds, bruises, etc." "Ru-Malax—a pleasant liquid Cascara preparation," and "Ru-Mol—Vitamin Capsules (A & D)." A booklet entitled "The Treatment and Cure of Rheumatoid Arthritis, Rheumatism and Allied Ailments," bearing the London company address, describes Ru-Mari as "strongly antacid in character and capable of destroying every disease germ in the body." In the same booklet appears the statement: "It cannot be too strongly emphasized that Ru-Mari is a cure and not merely a relieving agent." The American version, "A Treatise on Arthritis and Allied Conditions," emanating from 3149 Wilshire Blvd., Los Angeles, considerably modifies the curative claims. The United States postal laws prohibit promoting through the mails schemes to obtain money by means of false and fraudulent pretenses. The trade package of Ru-Mari, bottled in the U. S. A., modestly claims the nostrum to be "a scientific aqueous alkaline formulation designated to attack and correct harmful acid conditions, through its effective diuretic action." From an examination of the product in the A. M. A. Chemical Laboratory, it may be calculated that it contains approximately 0.65 per cent sodium carbonate ( $\text{Na}_2\text{CO}_3$ , anhydrous) equivalent to 1.76 per cent hydrated sodium carbonate (washing soda) and 0.30 per cent potassium hydroxide (lye) with a trace of organic material. A product essentially similar may be prepared by dissolving 1.76 gm. of washing soda and 0.3 gm. of pure lye in water to make 100 cc. of solution. Thus Ru-Mari is a typical nostrum, essentially an alkaline solution. (J. A. M. A., September 12, 1936, p. 894.)



# THE JOURNAL

OF

## The Medical Association of The State of Alabama

Published Under the Auspices of the Board of Censors

Vol. 6, No. 5

Montgomery, Alabama

November 1936

### RECENT DEVELOPMENTS IN THE STUDY AND SURGERY OF GOITER\*

By

WILLIAM D. HAGGARD, M. D., F. A. C. S.,  
D. C. L.

Professor of Clinical Surgery, Vanderbilt University School of Medicine, Surgeon to St. Thomas Hospital  
Nashville, Tenn.

Albrecht Durer's "Madonna of the Pink," painted in the sixteenth century with its faithful portrayal delineated her goiter in bold outline. In great goiter areas, like the Alps and the Piedmont cantons, few persons were seen without thyroid enlargement.

Forty-two causes for goiter were listed by Saint-Loger, who himself had a goiter. He eliminated all but the water-borne cause, which was the real factor. We now believe that it is the iodine-deficiency in the water that causes the thyroid gland to enlarge as the result of a work-hypertrophy to utilize the paucity of iodine in the blood, which is metabolized by this important gland.

Before the War Between the States there had only been a little over a hundred goiter operations reported. Since that time our knowledge has gradually and more recently grown to such an extent that the recognition and treatment of goiter has become very greatly perfected. The earlier surgery was attended with a very high mortality. The first recorded ratio is about 40 per cent.

The mortality of C. H. Mayo, the Kocher of America, from 1898 to 1906 was 8.04 per cent. Since then he has greatly lowered the mortality and now goiter operations are regularly performed in expert hands with a mortality of around 1 per cent. "This amazing record has not been gained

lightly," Halsted said, in reviewing his work, particularly in goiter, which was outstanding, and asked the question: "Is there any problem in surgery having required for its solution such intrepid, throbbing and prolonged striving of the world's greatest surgeons, which is reaped in results so bountiful and so adequate?"

The writer and his associates, in reviewing 1,000 goiter operations (September 1933), reported 309 non-toxic adenomas with no mortality and in the last 300 operations in the series with two deaths, a mortality of .66%, whereas in the first 285 exophthalmic goiters the death rate from operations was 4.55%.

At the Royal Infirmary of Liverpool, the death rate was 8 per cent, and at the Royal Infirmary of Edinburgh it was 12.4 per cent. Both of these were in toxic goiter. The editor of the Year Book of Surgery says: "It is difficult to understand an operative mortality of 12 per cent in any kind of thyroid surgery nowadays."

The growth of our knowledge of goiter, of which Foss has given such an excellent summary, has been slow but continuous and progressive. Perhaps the most important recognition of the contributions of recent years was given to the discovery of the essential element of the gland, the hormone thyroxin by Kendall in 1914, which has since been reproduced synthetically by Harrington. While many contributions have been made, we are still in need of more exact knowledge about the precise cause of goiter. Marine, who has done such admirable work in this regard, still admits that "the ultimate cause of simple goiter is totally unknown; the immediate cause is the lack of iodine." He believes that goiter is a compensatory process due to an absolute deficiency of iodine or even a relative degree. What is the cause of the iodine deficiency? In all the goitrous belts of the world it appears to be due to the lack of iodine in the water, soil and plants. Web-

\*Read before the Association in annual session, Montgomery, April 22, 1936.

ster believes that there are certain so-called goitrogenic foods which contain chemical substances that depress the oxygenation of the tissues. This begets a compensatory effort on the part of the thyroid to meet the demand by producing thyroxin. The prevention of goiter in school children by the annual administration of iodine is well known. While the incidence in other than goitrous areas is not urgent enough to require its administration in a wholesale way, it should become a universal practice to give iodine to the expectant mother who has goiter, to prevent her child from being goitrous or defective.

In the production of exophthalmic goiter the exact cause is still elusive. It is not due to happiness and tranquility. Psychic, emotional and irritative causes play a definite role. This was recognized by Benjamin Rush. When writing upon the function of the thyroid and other of the larger glands of the body, and in noticing that the thyroid was larger in women than in men, he said: "Provision is necessary to guard the female system from the influence of the more numerous causes of irritation and vexation of mind, to which they are more exposed than is the case with the male." When Magnus-Levy proved in animal experimentation that the removal of the thyroid made a marked impression upon the respiratory metabolism and the exchange of gases, it was the first recognition that this function was dependent upon the thyroid gland. He observed further that in exophthalmic goiter there was an increased combustion, as a result of increased oxygenation. That function is presided over by the thyroid hormone. These observations were the beginning of the basal metabolic estimation. Basal metabolic estimation must be utilized if there is thyrotoxicosis. It is not only valuable in diagnosis, but also as a means of assessing the amount of toxicity.

In Zurich, where goiter is endemic, Oswald showed that in the exophthalmic variety there was not only a great lack of colloid, but that the gland itself was almost free of iodine. On the contrary, the large, non-toxic colloid goiter was charged with iodine. In fact, it was increased almost a hundred-fold. It is known that iodine is largely metabolized by the thyroid. In fact, after a large administration of an iodine salt, given by Marine, nearly half of the

amount was recovered from the gland. The thyroid gland has a greater arterial circulation than the brain, although the thyroid is only one seven-hundredth part of the body weight.

In the thirteenth century Messer Marco Polo noted that certain of the domestic animals presented tumors of the throat, due to the character of water they drank.

Michelangelo, the incomparable, while painting the imperishable frescoes on the ceiling of the Sistine Chapel, wrote a little sonnet beginning:

"I've grown a goiter by dwelling in this  
den  
As have cats from stagnant springs in  
Lombardy  
Or in what other lands they hap to be."

From the far-off Andes, Ault believed that iodine should be sold by the government to prevent goiter. In Switzerland the incidence was actually reduced in children from 90 to 28 per cent by the yearly administration of iodine.

Newman, the Public Health Officer of London, said that "In the Pemberton Valley of British Columbia in 1917 the pigs were all born hairless, 85 per cent of the colts died, the eggs were not hatched and the children were all goitrous." So bad was the situation that it was proposed to abandon the district, but instead they appealed to the American pathologists, who instituted the use of iodine. In five years these troubles had been completely eradicated.

McClure of the Ford Hospital found in the Detroit district that endemic goiter has been reduced to almost nil since the introduction of iodized salt and that no cases have shown the slightest ill effect from its use.

*Blood Iodine:* In recent biologic researches in goiter, it has been demonstrated that the increase of the level of blood iodine is regularly found in exophthalmic goiter. Moreover, the spinal fluid contains, according to studies by McCullagh, about one-fourth as much iodine as the blood. The blood iodine holds below normal during fatigue, but the extent of the trauma of surgical manipulation has been shown to act as an astonishingly powerful thyroid stimulant.

The average normal iodine content in



ordinary individuals is 12 gamma per cent. In hyperthyroidism 90 per cent have an increase of the normal blood iodine, while normally the entire blood stream content is less than one milligram of iodine. It can be definitely increased by any form of iodine medication, even iodized salt.

After thyroidectomy the blood iodine

in hyperthyroidism the blood cholesterol was low. In non-hyperfunctioning adenoma it was normal and very high in myxedema. In the former it rises considerably following Lugol's solution. Hypercholesterolemia will clear up on administration of thyroid extract, provided it is not due to hepatic or pancreatic or other diseases.



FIG. I—Mrs. C. Exophthalmic Goiter—Age 28. B. M. R. +89%, pulse 132. Lugol's m. 15 t.i.d. Eleven days later B. M. R. +50.9%. Five days later B. M. R. +35.2%. Pulse 84. Successful thyroidectomy under local.



FIG. II—Mrs. C. Small Exophthalmic Goiter. B. M. R. +40%—Lugol's lowered rate to +7.9%. Scar 9 days after thyroidectomy.

falls quickly to a low normal level. Curtis has compared the significance of the blood iodine in thyroid diseases to a similar relationship in the blood sugar in diseases of the pancreatic islets, or of the blood calcium in parathyroid diseases.

It has been shown in the Detroit area by Turner (American Journal of Diseases of Children, December 1934) that the average iodine content of human skimmed milk is greater throughout the period of lactation in goitrous regions than in nongoitrous regions, which is "believed to be due to a compensatory activity on the part of the mother's thyroid gland."

*Blood Cholesterol:* Epstein showed that

*Blood Oxygen:* The average oxygen saturation of the blood in the thyroid vein is 90 per cent, whereas the average oxygen saturation of the blood in the thyroid artery is 93 per cent. In the external jugular vein it is 84 per cent; in the median basilic vein 70 per cent. This indicates that the capillary bed in the thyroid gland is wide open. Cardiac dilatation and hypertrophy have been observed in arteriovenous fistula, and it may be that dilatation and occasional hypertrophy in exophthalmic goiter are due to this so-called "physiologic arteriovenous fistula" in the thyroid gland itself, according to Pemberton.

THE IMPEDANCE ANGLE

In one of the newer fields of investigation it has been shown that the angle of impedance is specific.

Frazier has designed a simple portable apparatus to test the resistance of a patient to an alternating current, regarding the patient simply as a di-electric body. Frazier feels that the variation of the angle is more specific to the thyroid factor than an increase of B. M. R. and is of higher diagnostic reliability. Therefore, it makes the diagnosis between non-toxic goiters and incipient thyrotoxicosis, and also, which is very important, between masked hyperthyroidism and anxiety neurosis, which is so common. If this reading instrument, which can be employed by an unskilled operator, comes into more general use it may be of added value in a diagnostic way.

EXOPHTHALMIC GOITER

In Great Britain there were 1,404 deaths from exophthalmic goiter in 1932, which number doubled in ten years, according to the Registrar-General.

Greater than the deaths in terms of disability are the "wrecks of humanity" which are the flotsam and jetsam of advanced and neglected exophthalmic goiter.

In its early stages there are slight symptoms and the signs are not always challenging. The second or chronic stage is obviously the one for prompt and conquering action. In the third there are complications and disabling symptoms without complications. Treatment in the third stage is not productive of the best results and sometimes it is difficult to restore these postponed cases to their previous good health, to say nothing of the increased risk induced by the unnecessary delay. The death rate is much higher than in the second stage.

In the first stage, medical management is indicated and beneficial, although not regularly curative, but should not be persisted in until complications that may be almost beyond control have occurred. They certainly should not be allowed to drift along, even with treatment in the presence of unrelieved symptoms. We must not be insensible to any increase in symptoms, such as breathlessness, irregularity of the heart, the presence of the goiter in the chest, as shown by x-ray, the presence of fluid in the pleura, edema of the eyes so se-

vere that chemosis occurs, increasingly rapid pulse in spite of treatment, confusional insanity, progressive emaciation, and auricular fibrillation.

Our inaction in treatment at an early period may find a rude and tragic awakening in the thyroid crisis or storm. These patients presenting extreme nervousness, redness of the face, jactitation, vomiting, sweating, high temperature, extremely rapid pulse and irrationalism, if not given large doses of iodine, will lapse into circulatory collapse. While it is rarely seen after operation nowadays with adequate preparation, it is more likely to occur in elderly people; those who have had great loss of weight, emaciated below a hundred pounds, and whose hyperthyroidism has been of long duration. These are the patients that had better be handled by the graduated operation, as practiced before the iodine preparation, and the occasional exhibition of x-ray at the term of activity.

Thyroid crisis or storm has been more successfully treated since the introduction of very large doses of iodine by Plummer. Sauerbruch says the death rate was nearly 17 per cent before the heroic treatment, which he denominates "Plummerung."

*Exophthalmic Goiter in the Extremes of Life:* Below the age of puberty this syndrome manifests itself by irritability, nervousness, increased appetite with weight loss, with goiter and tachycardia. This rarely appears before the fourth year of age although there are one or two records of a congenital example. Contrary to thyrotoxicosis in adult life, the males are affected as often as females. In addition to the classical symptoms seen in grown persons, there are in addition sometimes irregular choreic-like movements that take the place of real tremor. Palpitation and muscular weakness are prominent. In an extreme example the emaciation is conspicuous and the hair is sometimes lustreless; and in children old enough for an accurate record the basal rate may run as high as 70. Mild cases are greatly benefited by general medical management plus Lugol's solution, but in the very severe cases operation is indicated. Care should be taken not to remove too much of the thyroid, because of the growth and development which must occur later; and because occasionally a child



becomes quite fleshy and bloated, with hypothyroidism.

The care of the acute thyrotoxicosis in the young at an average age of 32 is exacting enough, but one of the greatest problems in thyroid surgery is the management of hyperthyroidism in the aged. Clute found that in the Lahey Clinic 4.4 per cent

hands, and fourth, edema of the feet with irregular heart action. Over half of the patients showed "definite evidence of cardiac damage, either as auricular fibrillation or as congestive heart failure" on admission. Over three-fourths of the cases presented a hot burning skin, so characteristic in younger patients. The weight loss in these

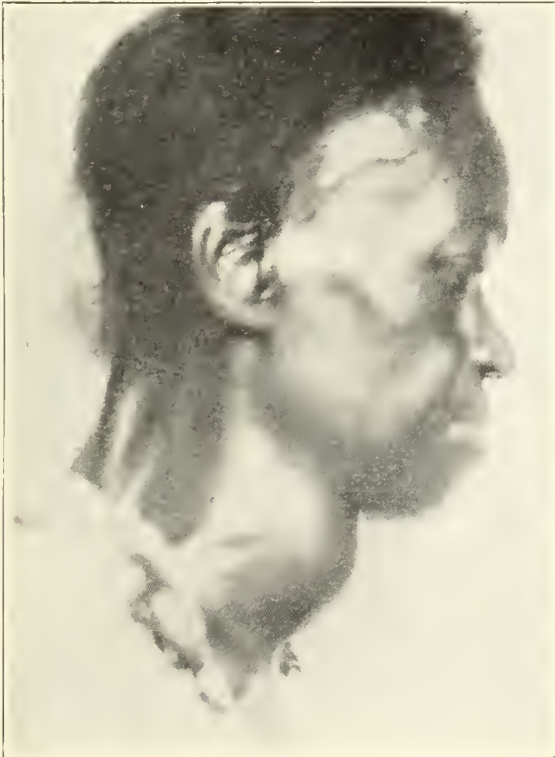


FIG. III—E. H. Toxic Adenoma 20 years—Age 48. B. M. R. +134%. Toxic symptoms 2 years. Broken compensation. Lost 80 pounds. Pulse 180.



FIG. IV—Mrs. L. Toxic Goiter 30 years Age 44. Toxic symptoms 3 mos. Pulse 130. Tremor. No eye signs.

of their cases were over sixty, whereas of the adenomatous goiter with hyperthyroidism (toxic adenoma) 20 per cent were over sixty. He computed that, while there were approximately four times as many cases of exophthalmic goiter as of toxic adenoma, the cases in which hyperthyroidism was engrafted upon the existing adenoma were nearly five times as frequent in the aged.

In the elderly the four chief symptoms were loss of weight, palpitation of the heart, increased nervousness and myasthenia. The next group of chief complaints of the aged was: first, dyspnea with a sense of pressure in the neck and in the front of the chest. Second, increased sensation of warmth. Third, trembling of the legs, muscles and

elderly people studied by Clute was from 20 to 30 pounds; in 10 per cent it was from 50 to 100 pounds. The B. M. R. was plus 90 or above in four-fifths of the cases. Exophthalmus was absent in 60 per cent. The apathetic cases, described by Lahey, are the most desperate and deceptive. The basal rate may be only elevated a trifle and yet the patient be extremely sick with hyperthyroidism.

*Malignant Thyroid:* Malignancy occurs in approximately 1 per cent. Many are not diagnosed preoperatively. They most fre-

quently arise from a fetal adenoma. The nodular goiter, however, is followed by malignancy in about 2 per cent of the cases.

*Total Thyroidectomy for Heart Disease:* The work of Blumgart and Berlin showed that one of the most satisfactory results of complete removal of the thyroid has been in the congestive heart failure cases, which are uniformly relieved after the toxicity is conquered by total removal of the thyroid. It lowers the B. M. R. and allows the heart to carry its load better, so that compensation occurs; about one-third were too far advanced and another third declined operation. Similarly, angina pectoris is likewise benefited by total thyroidectomy. It is a very much more exacting operation than partial or subtotal thyroidectomy.

Thompson, Taylor and Meyer say that "severe postoperative reactions and various complications from thyroidectomy have always been more common following surgical procedures carried out by inexperienced men than those carried out by experienced men."

*End Results:* The great majority of patients after a few months are symptomatically "cured" provided they give themselves the benefit of a tranquil life for a number of months after the operation and the use of iodine for ten weeks or more after the operation.

The very few cases that are not benefited may usually be found in the group who were neither physically or mentally normal before operation and they simply revert to their own norm. Another group are those who have one or more septic foci in the body, which should be cleaned up in order to prevent recurrence of symptoms whether they initiated them or not. Lastly, the duration of the disease prior to operation and its damaging effect upon the heart and the general constitution must be evaluated and discounted.

#### DANGER SIGNS IN OPERATIONS FOR GOITER

One of the most tell-tale and forbidding conditions is increased nervous instability or emotional instability. It is a bad sign to see patients throw themselves about the bed, to weep inordinately. A calm patient is as reassuring as a low basal metabolic rate.

Conditions bespeaking caution on the part of the surgeon are:

1. Great loss in body weight.
2. Reduction to less than one hundred pounds in weight.
3. The tense, frightened, turgid patient with high pulse, throbbing arteries, pounding heart.
4. The "iodine-resistant" patient or one who has unfortunately received iodine for a long period, until it has lost its specific action and the patient's basal rate can no longer be influenced by its administration.
5. The apathetic thyroid case with a low basal rate.
6. Extreme irritability of the heart with a bizarre rise in the pulse to most any stimulus.
7. Mental derangements are the most severe danger signals.
8. No operation should take place in the presence of exophthalmic goiter without the same preparation as for thyroidectomy.

---

#### THE DIAGNOSIS AND TREATMENT OF BRAIN TUMORS\*

By  
WALTER E. DANDY, M. D.  
Baltimore, Md.

All lesions become more frequent as our acquaintance with them grows. If we hark back but a very few years, appendicitis was unknown, then very rare, and finally a very common ailment. The same story is true of any number of lesions. The great educator of true perspective is necropsy and operation. Brain tumors are passing through the rare stage because neither necropsy material nor operative inspections have checked mistaken diagnoses. But in a few clinics intensive studies have shown not only that brain tumors are among the most frequent tumors of the body, but during the first six decades, particularly from the second to the fifth decades, tumors are among the most common afflictions of the central nervous system.

The results of the long struggle in the solution of appendicitis should teach us much about the fundamental treatment of brain tumors, and prevent many of the sad

---

\*Presented to the Association in annual session, Montgomery, April 22, 1936.



chapters in its story when told in later years. Two accomplishments have transformed a prohibitive mortality in the treatment of appendicitis into one which should be practically nil; first and foremost, an early and accurate diagnosis, and second, an early and efficient operative procedure which eradicates the cause.

In the treatment of brain tumors, the same factors are all-important, and, in addition, there is the third great factor—localization of the tumor. Although the diagnosis and localization of appendicitis are nearly synonymous, the same is far from true in brain tumors. In fact, the localization of brain tumors has been the most difficult phase of this complex neurologic problem.

It is doubtless known to you all that tumors as large as one's fist are still compatible with life and without giving the slightest evidence of their situation. For many years it has been possible to know that a patient was afflicted with a tumor, but we have not been able to tell where it was located. With such inadequate information, it is clear that operative results must be very poor. Without accurate information, I should venture the assertion that in the hands of the very best operators, less than one-third of all explorations for brain tumors would actually disclose the tumor at the first operation. In fact, so discouraging have been explorations for tumors of the brain, that, except when the location of the tumor seems clear, the palliative decompressive operation has become more or less routine. Obviously, such treatment is most unsatisfactory. There is only one way to cure a patient with a brain tumor, and that is by a complete extirpation of the growth by operation. Decompressions have been justifiable only because the location of the tumor has been unknown. If the location of the tumor is known, any treatment which delays or is palliative is no more justifiable than delay or palliation in appendicitis.

Although the rate of growth of brain tumors is variable, a fatal outcome is almost inevitable. But we have many warnings of this impending calamity. Tumors cause headache, destroy vision, produce paralyses, convulsions, speech and mental and other disturbances, and most of these changes are progressive. The great hope for patients

afflicted with brain tumors lies in the earliest possible diagnosis. To do this, it is incumbent upon us to suspect a tumor when any symptom or sign referable to the central nervous system makes its appearance. Fortunately, it is now possible by the use of cerebral pneumography, i. e., roentgenography of the brain after the injection of air into its ventricles or subarachnoid spaces, to diagnose and also to localize practically all brain tumors which cause pressure, and in the early stages of the tumor's growth. This being possible, the problem of handling brain tumors is greatly simplified.

The treatment of tumors is now reduced to a single simple formula: complete extirpation when the nature and location of the growth make this possible; and when impossible of removal, then and only then to produce the maximum decompression for palliation. Unfortunately, some brain tumors, by virtue of their infiltrating character, do not permit extirpation. In other instances, removal is precluded because of the invasion of the brain stem, speech centers, or other vital parts of the brain. There are, however, many nonencapsulated growths in silent areas of the brain which, if detected early, can be completely removed. The so-called silent areas of the brain were formerly the greatest handicaps to cerebral surgery because they prevented diagnosis or localization of the growths owing to the absence of signs or symptoms. Formerly, it was necessary to perform palliative operations until the tumor grew beyond the confines of the silent brain and produced paralyses or other focal destructions of the contiguous brain with recognizable functions. Now these silent areas are the greatest assets for the success of brain surgery; for, the localization now being possible in another way, extirpation of the growth can be done with contiguous silent areas of the brain, when necessary, and still leave the patient without noticeable defects.

I have said that practically all brain tumors should now be localized and at once. Brain tumors give rise to two types of signs and symptoms: (1) localizing symptoms and (2) general pressure symptoms. If the former are present, the localization is automatically made. Their consideration need not detain us. But the overwhelming proportion of brain tumors give rise to so-

called pressure symptoms, and it is to the consideration of this difficult problem of localization that I wish particularly to call your attention. As you know, the cranio-vertebral chamber is a closed and fixed space and its contents—blood, cerebrospinal fluid and brain tissue—are almost totally incompressible. For this reason a new growth is tolerated only by a compromise with these intracranial contents, and this compromise gives the warning signs: headache, nausea and vomiting, choked disc, etc.

Probably all brain tumors which produce intracranial pressure produce (as an expression of this compromise) changes in the size, shape or position of the ventricles and subarachnoid spaces of the brain. If the fluid from these spaces is removed and air is substituted in its place, these changes in size, shape and position will be accurately registered in roentgenograms of the head. It is, therefore, clear that if these alterations are known, the location of the cause which produces them (the tumor) can be deduced. In many instances the localizations have been so precise as to permit transcortical incisions of great depth to find the tumor at operation, and often successfully to remove tumors which otherwise could never be found except at necropsy.

I should not wish to leave you with the impression that the injection of air is a simple and harmless procedure. Unfortunately, it is the reverse. It is both complicated and dangerous. The interpretation of the air shadows is difficult and is all dependent on the intimate knowledge of intracranial anatomy and physiology. Its danger is shown by the fact that I have had three deaths in my first 100 injections. However, in over 2,000 since then, there has been but one. This is owing to the fact that we have learned how to eliminate the dangers. Air is an irritant. When the ventricular channels are blocked, its absorption is prevented; a serosanguinous exudate results from its irritation, and this produces a marked accentuation of pressure symptoms. Many patients are so ill that this additional pressure can not be tolerated. To prevent this complication, the air should be removed as soon as possible after the skiagrams are completed. If the quantity of air injected is large (30 cc. or more) either the original ventricular fluid

or saline solution may be replaced. In safe hands, the procedure is now without great danger. It seems inadvisable, at least at the present time, that a risk so great as the use of air requires should be assumed except by a competent neurological surgeon.

Lantern slides were then shown as follows:

(1) Tumors of the frontal lobe: The localizations were made by dislocation of both lateral ventricles and the third ventricle away from the tumor (antero-posterior view). Often the homolateral ventricle, and at times also the third ventricle, was obliterated. The third ventricle, when present, takes an oblique instead of a normally upright position (anteroposterior view); ventricular filling defects on the side of the tumor (lateral views).

(2) Tumors of the temporal and parietal lobes: Practically the same pictures as frontal lobe tumors, though with more pronounced filling defects. There may be elevation of the descending horn of the ventricle in temporal lobe tumors. Parietal tumors may dislocate the body of the ventricle downward, broaden its diameter and shorten its height, or narrow its diameter and increase its height, depending on the exact position of the tumor.

(3) Tumors of the occipital lobe: The lateral dislocation of the anterior horns of the ventricle (anteroposterior view, occiput down) is less than in frontal, temporal and parietal tumors, and may even be absent. Filling defects of ventricles and alterations in size, position and shape of the ventricles.

(4) Ventricular tumors: Filling defects in ventricles and evidences of hydrocephalus from closure of the ventricles. A small tumor in the body of the lateral ventricle showed a normal ventricle anterior to the tumor and hydrocephalus of the ventricle posterior to it. The sharp anterior and posterior margins of the tumor were shown by the abrupt lines of termination of the air shadow. A tumor of the third ventricle showed a bilaterally symmetrical hydrocephalus, but with no communication between the two lateral ventricles and with absence of the third ventricle.

(5) Tumors producing symmetrical dilatation of the lateral ventricles with intercommunication: This line of tumors included (1) suprapituitary tumors growing



upward and occluding the aqueduct of Sylvius, (2) pineal tumors, (3) tumors contiguous to the pineal and third ventricle, and (4) tumors in various parts of the posterior cranial fossa (cerebellum, cerebello-pontine angle, brain stem and fourth ventricle). All of these tumors block the third or fourth ventricle. In one instance a shadow of a suprapituitary tumor was seen in the air background of the dilated ventricles; its presence could not be detected except in the presence of air. This has been an important finding in many other tumors situated elsewhere. In another case of suprapituitary tumor, the tumor had grown lateralwards and blocked one lateral ventricle and partially obliterated the third ventricle.

A pineal tumor was shown causing dilatation of the ventricles with partial obliteration of the third ventricle, and a large shadow of calcification in the air background.

An endothelioma arising from the leptomeninges near the pineal produced a great hydrocephalus of both lateral ventricles, partial obliteration of the third ventricle, and a great filling defect of the left lateral ventricle.

Various tumors of the posterior cranial fossa produce dilatation of the third and both lateral ventricles. A case of cicatricial closure of the foramen of Magendie was shown (with dilated lateral and third and fourth ventricles). After a new foramen of Magendie had been constructed, the air could be seen in the cisterna magna and the cerebral sulci (indicating that the new foramen was patent several weeks after the operation). The patient has since remained well (now 14 years). Another case was shown in which a tremendously dilated cisterna interpeduncularis extended upward and produced a great filling defect in the left lateral ventricle. Both lateral ventricles were of enormous size owing to the obstruction in the cisterna.

#### DISCUSSION

*Dr. Chalmers Moore (Birmingham):* It requires a great deal of temerity for even another neurological surgeon to discuss a paper by Dr. Dandy. For he is one of an extremely small group who has made neurosurgery. It remains for the rest of us to attempt to follow, as well as we may, this brilliant leadership.

However, with all propriety, one can not emphasize too frequently nor with too much earnestness

the facts presented here this morning. Brain tumors are probably no more frequent now than they were 2,500 years ago. But due to the stupendous progress in diagnostic procedure particularly during the last two decades, this lesion has come to occupy one of the top positions in tumor incidence.

It is perfectly obvious, however, that these advances accomplish nothing if we do not recognize early the significance of complaints resulting from increased intracranial pressure or those referable to local irritation of the cortex. One must remember that the functions of the brain are the initiation, reception and transmission of impulses of various sorts as well as the fabrication of concepts and the storing away of experience or memory. Tumors begin as minute lesions which, as they expand, produce symptoms referable to disturbance of function of that part of the brain in which they are located. The weaving of the symptomatic pattern will, therefore, be of progressive nature manifested by changes in the mental state, endocrine disturbances, motor or sensory changes, difficulties of equilibration and gait and so on. It is, with certain exceptions, only late when signs of increased intracranial pressure develop and the time has long since passed when the physician should wait for the familiar triad of headache, vomiting and visual failure before suspecting an intracranial neoplasm.

Indeed, in a definite percentage of cases, these signs do not develop at all. Demonstrative of this point I should like to recite briefly the history of a young woman from whom a tumor as large as an orange was successfully removed, and in whom there were neither localizing signs nor those of an increase in intracranial pressure. This patient, a white woman, age 21, for the preceding 8 years had been having spells in which she would suddenly and without cause begin to run and continue until she was forcibly stopped. This occurred at increasingly frequent intervals. Two years ago, 6 years after onset, she had a generalized convulsion when restrained in one of her "running spells." This is essentially all there was to her history; and examination, both general and neurologic, were equally negative. Ventriculographic studies revealed a sharply demarcated obliteration of the anterior portion of both lateral ventricles. The diagnosis of a tumor of the anterior fossa was made from this finding and operation revealed a tumor as large as an orange originating from the floor of the left anterior fossa, extending up between the frontal lobes through the falx to the opposite side.

Convulsive seizures beginning in adult life constitute a very definite group of brain tumor suspects.

After trauma, arteriosclerosis and syphilis are eliminated tumor is very frequently the causative factor. It is well to bear in mind that the condition of idiopathic epilepsy develops in over 50% of its victims before the age of 15, in 85% before 30 and in over 90% before the age of 40. Epilepsy, or convulsive seizures, must be looked upon as a symptom and the nature of the causative factor should be diligently sought for in each case.

I should like to stress the fact that every patient that has a sudden loss of consciousness and loss of

motor function must not be called a vascular accident without very careful neurologic examination. Oftentimes a tumor is present in a silent area for months without producing symptoms when the sudden filling of a cyst, or a small hemorrhage in the tumor itself, will produce a sudden attack simulating a so-called stroke of apoplexy.

Dr. Dandy has mentioned the importance of symptoms referable to the optic nerves and tracts. I think careful examination of this cranial nerve, including the visual acuity, the appearance of the nerve head and particularly the visual fields, forms one of the most important neurologic procedures. When I tell you, in all frankness, that in recent months I have seen two patients whose vision was irreparably lost—and had been for over a year in each instance—and who, in spite of the fact that they had been seen by some of the best men in this State, had never had their visual fields taken, you will agree that one can not speak too frequently of the importance of this matter. Vision could have been preserved in these cases had the characteristic bitemporal hemianopsia of tumors at the chiasm been observed early in its development. It is, therefore, for the ophthalmologist, more than anyone else, to acquaint himself with the early signs of tumors about the sella turcica, for it is chiefly to him that these patients will entrust themselves for advice.

Likewise the otolaryngologist should be on the alert for the patient complaining of unilateral deafness preceded by tinnitus. The acoustic nerve tumors offer, if anything, a more definite syndrome than the chiasmal group, and a carefully elicited history of the progression of events is often all that is needed to make a diagnosis—certainly enough to warrant very strong suspicion of a tumor at this site.

The pediatrician, unless he becomes brain tumor conscious, may likely misinterpret the recurrent attacks of vomiting in children. This is particularly suspicious, and may be the earliest and for many weeks the only symptom of intracranial tumors of childhood. Of course, children vomit easily and for a multitude of reasons, but persistent recurrent vomiting should be taken seriously. We are not speaking of the vomiting of early infancy; tumors are quite rare in infancy and when present the earliest sign is progressive enlargement of the head.

Probably Dr. Dandy's most important single contribution to neurologic surgery has been ventricular air studies. This procedure has tremendous value not only in the localization of lesions, but in determining their absence. Dandy has stated repeatedly that, in proper hands, this procedure is without danger. This has certainly been my experience, for in something over 100 cases not a single untoward symptom has developed following air injection. However, Grant, several years ago, developed the fact that over the country in general, his statistics being culled from neurosurgeons, the procedure had a mortality of 8.9%. When one is confronted by these two diametrically opposite views from two authentic sources one is naturally confused.

The main thought that I should like to leave with you, and I am sure Dr. Dandy agrees, is that tu-

mors of the brain are of much greater frequency than has formerly been thought. Once the general profession recognizes this fact then the early signs are going to be sought for and patients submitted to surgical interference at a time before the operative risk becomes so hazardous from the greatly increased intracranial pressure. The operative mortality rate has been greatly decreased during the last decade. It can be still more in the future, but only in direct proportion to the promptness with which the victims of this otherwise 100% fatal malady are referred to competent neurosurgeons for treatment.

## CERTAIN FACTORS IMPORTANT IN THE ETIOLOGY AND TREATMENT OF PEPTIC ULCER\*

By  
ANDREW B. RIVERS, M. D.,  
Division of Medicine,  
The Mayo Clinic,  
Rochester, Minn.

It is no longer possible to dismiss the discussion of the genesis of ulcer with the complacent assumption that the etiology of this disease is unknown, although it must be admitted that no single causative agent has been discovered which is invariably responsible for the formation of ulcer and that in all probability no such single causative factor exists.

Peptic ulcer is a distinct disease entity only insofar as it represents a form of dissolution of tissue that occurs in the presence, and probably in consequence of the eroding action, of the acid gastric chyme. It is the local manifestation of a disturbance in the gastroduodenal tissues, which in turn is brought about by various systemic causes.

So well has the work of laboratory investigators been correlated with the experiences of clinicians that many of the links in the chain of events which result in chronic peptic ulceration can now be satisfactorily conjoined. Some of the factors important in the causation of such lesions, however, are imperfectly understood and it is unfortunately true that much of what is known is forgotten or ignored when a plan of treatment for the cure of the disease must be formulated.

### ETIOLOGY

To review in detail the multiplicity of theories advanced to explain the genesis of

\*Read before the Association in annual session, Montgomery, April 22, 1936.



ulcer would be an almost endless task, nor would it serve any useful purpose in this paper. An analysis of the rather heterogeneous data available from a review of the most important of these hypotheses, however, makes it possible to group them into three categories according to the factor held principally to be the cause of peptic ulceration: (1) acid aggression, (2) local trauma to tissue, and (3) systemic neurogenic disturbances. But, as has been said, peptic ulcer is not invariably caused by any single one of these factors: it is probably caused by the interaction of several or all of them, each being of varying significance in different cases. It is probable also that even in the same case first one factor and then another may assume the position of major etiologic importance.

#### ACID AGGRESSION AND TISSUE DEFENSE

The only common denominator which is consistently and readily applicable to the problem of peptic lesions is that they occur in tissues bathed by gastric chyme. When tissues other than those naturally accustomed to the chemical and mechanical action of the gastric juices are exposed to their action, the potentiality for ulceration promptly develops. The correlation of experimental studies on animals and clinical observations on patients throws some interesting light on this problem.

*What constitutes the erosive factor in the gastric juice?* The secretions of the fundic portion of the stomach are highly acid; those of the pyloric portion are not acid, being made up mostly of mucus. As a result of experimental studies on animals it is known that if the secretion of the fundic portion of the stomach is made to flow into the intestine, ulcer almost invariably develops in the intestinal segment bathed in such secretion of the pyloric portion of the stomach. Such experimental studies on animals therefore suggest that the factor inherent in ulceration is to be found in the cellular product of the fundic portion of the stomach and this would be either hydrochloric acid or pepsin. That this also holds true for man has been adequately established. Ulcer has never been known to develop in man in the absence of hydrochloric acid.

*Is hydrochloric acid or pepsin the erosive factor?* Dragstedt has carried on some investigations to answer this question. He

made the pertinent observation that trypsin is a more active proteolytic enzyme than pepsin, and yet it has not been demonstrated that ulcers will develop in living tissues exposed to pure pancreatic juice. He found that digestion of living tissue was proportional to the concentration of free acid, and not at all to the concentration of pepsin. One pertinent fact, however, remains and that is that without pepsin ulceration does not occur. The combined efforts of the two substances are therefore essential to digestion, and consequently to erosion.

*Has the concentration of hydrochloric acid anything to do with erosion?* To study this particular question Harper experimentally divided the stomachs of dogs into three sections: (1) fundic, (2) cardiac, and (3) pyloric. The fundic section represented acid chyme practically free from intragastric or extragastric substances which would reduce acidity. Ulcer almost invariably developed in intestinal segments on which the acid chyme from fundic pouches was allowed to impinge. However, when gastric chyme which was either of low acidity or contained no acid at all was drained over the intestinal segment ulceration did not occur. Dragstedt and Vaughn, investigating this same question, carried out some experiments in which large windows were produced in the stomachs of dogs; into these windows were then carefully sutured parts of duodenum, jejunum, ileum and colon, or of such organs as the spleen, kidney, and pancreas. In no case were these tissues digested away. They found, however, that such organs as the spleen and kidney, which were found to remain intact if implanted into windows made in the normal stomach, were promptly digested away if implanted into similar windows made in an isolated stoma pouch where they were exposed to the digestive action of pure, undiluted gastric juice.

The clinical importance of this observation is obvious, because in most cases of peptic ulcer, particularly of the duodenum or about an enteric stomach, the gastric secretory rate is likely to be elevated.

*Are different tissues equally subject to erosion?* In order to investigate this question Mann transplanted loops of duodenum, jejunum, and ileum to the point of emergence of the gastric contents, in experi-

ments on animals in which the secretions poured into the duodenum had been drained into the ileum. The duodenal mucosa was found to have an increased resistance to the formation of ulcer; the mucosa of the ileum was found to be the least resistant, and that of the jejunum to be intermediate between the two. Harper and other investigators corroborated these observations. Those tissues which in their normal state are regularly exposed to acid chyme seem to be definitely more resistant to its eroding action than others which are not normally exposed to it.

In the normal physiologic cycle the erosive action of the acid gastric chyme is amply counteracted by the gastroduodenal tissues which, when their mucous membranes are intact, adequately protect themselves against this digestive action. Nature seems to have endowed the gastroduodenal tissues with several lines of defense, which are singly or in combination utilizable for protection against the erosive action of gastric chyme. The first factor in defense lies in the living gastroduodenal cells themselves; the neutralizing effect of the alkaline blood in the capillaries of the mucosa, the protective action of gastric mucus, and perhaps also the presence of antipepsin in the gastric mucosa, all have been considered as possible explanations of this obvious effect.

It has definitely been demonstrated that the duodenum possesses a defensive mechanism against erosion which is far more efficient than that possessed by tissues lower in the gastro-intestinal tract. Physiologists have again given much assistance by investigating the importance of some of these defense mechanisms.

*Is there a defensive factor against erosion in the duodenal mucosa?* In experimental studies on animals, Mann and Kawamura completely removed the duodenum and then placed a loop of jejunum where the duodenum had previously been, thus re-establishing the continuity of the gastro-intestinal tract. The bile and pancreatic juice were then drained into the jejunum, thus retaining the normal, physiologic extraduodenal antacids. In 20 per cent of such cases ulcers developed at the point where the jejunum was anastomosed to the stomach. This suggests that the duodenal mucous membrane has a protecting me-

chanism that is not possessed by the jejunal mucosa.

Baker, Flory and Harding were of the opinion that the normal secretion of Brunner's glands aids in protecting the duodenal mucosa from injury by acid chyme, and Flory and Harding intimated that the specific factor in this protection might lie in the mucoid consistence and contained alkalies of the product of these glands. Kosaka, Lim, Ling and Liu, and lately Ivy and Greengard, have suggested that the intestinal mucosa contains a substance, which they called "enterogastrone" that is absorbed and causes inhibition of gastric secretions, thus indirectly affecting the defensive mechanisms.

*Is there a defensive factor against erosion in the pancreatic juice and bile?* Mann and Williamson, in order to gather some information regarding this question, drained the bile and pancreatic juices away from the duodenum into the ileum of dogs. In these experimental studies normal gastroduodenal continuity was maintained, the gastric chyme impinging on tissue intended by Nature to receive it; however, the loss of pancreatic juice and bile was sufficient to disturb the balance between the mechanism of aggression inherent in the chyme and mechanism of defense inherent in the duodenal tissue, so that dissolution of the duodenal mucosa occurred in 50 per cent of such cases.

McRoberts demonstrated that the pH of the duodenum is maintained toward the acid side for much longer periods following ingestion of a fat meal when the bile has been diverted in such a manner that it does not reach the duodenum. Using dogs Hoerner evulsed the pancreatic ducts, making it impossible for the pancreatic secretion to enter the duodenum; he found that under such conditions the acidity of the duodenum was greater and was maintained for much longer periods. It would appear, therefore, that the bile and pancreatic juice have an important role in protecting the duodenal mucosa against the eroding action of acid chyme.

*To what extent is the defensive factor a combination of the protective action of bile and pancreatic juice and of the duodenal mucosa itself?* Mann and Williamson developed experimental procedures by which the gastric contents of dogs were led direct-



ly into the jejunum without receiving an admixture of bile, pancreatic juice, and duodenal secretions, thus eliminating the protective substances in the duodenal wall and in the bile and pancreatic juice. Following this procedure jejunal ulcers developed in 95 per cent of cases.

*Under what conditions will duodenal defenses against erosion break down?* Stevens, in studying the capacity of the duodenum to neutralize and to buffer acid, demonstrated that this organ had a remarkable reserve function in this respect which was materially in excess of ordinary physiologic requirements. That it will break down, however, under the necessity of neutralizing without interruption the acid chyme, is shown by the work of many physiologists. Mann and Bollman, for example, instilled 0.4 per cent hydrochloric acid into the stomachs of dogs at a rate of less than 1 cc. per minute, for about eight hours daily. The animals appeared to get along very well for several weeks, but, after this time, peptic ulcers usually developed.

Baker and Florey and Harding studied the effect of hydrochloric acid on the duodenal cells of animals which had been fed it. Baker killed his animals at varying times after feeding them hydrochloric acid in concentration of from 0.2 to 0.5 per cent. The first response of the duodenal cells to the feeding of the acid was to pour out copious amounts of secretion. This was also noted by Florey and Harding. Baker additionally found that, if he continued to feed acid, the duodenal epithelium would promptly disintegrate and that, if feeding acid was continued, bleeding from the membrane usually would result. On the other hand if the feeding of acid was stopped a remarkably rapid regeneration was noticeable and in forty-eight hours the epithelium was usually again normally intact.

It is possible to demonstrate a human corollary for these observations. Gastric secretory rates are usually accentuated among patients who have peptic ulcer. This is especially noticeable among patients with duodenal or jejunal ulcer, and particularly so during periods when the ulcers are definitely active.

For some time I have been interested not only in the height of acid concentration and peptic activity, but also in the ability of the chief and parietal cells to maintain a

vigorous secretory rate for unusually long periods. It has usually been noted that, following the use of a stimulating test substance such as histamine, patients with peptic ulcer continued to secrete a highly concentrated acid for considerable periods after a drop in acidity would ordinarily have been expected. If such cellular behavior actually obtains in response to other stimuli, it would be obvious that the gastroduodenal defense mechanisms of patients with peptic ulcer might be forced to exert themselves accordingly. It would seem to me, therefore, that any inadequacy in the defense against such a persistently high rate of gastric secretion would be one of the crucial factors in the cause of ulcer. That the activity of the defensive mechanism should fluctuate with changes in the potency of the mechanisms of aggression seems logical, and one would expect on prolonged and sustained elevation of acid-pepsin secretion that the cells would make a correspondingly vigorous effort to throw up defenses against such accentuated tendencies to erosion. Ordinarily, in the daily physiologic fluctuation in acidity, there are alternate periods of rapidity and retardation in the gastric secretory rate, indicating that the cells are given "breathing spells" during which the forces of defense can be adequately reestablished. Since physiologists have demonstrated that continuous feeding of hydrochloric acid is likely to cause the eventual break-down of cells called on to resist the digestive action of gastric chyme, it seems reasonable to assume that an important cause of such cellular dissolution, which results in peptic ulcer, lies in the exhaustion of the defensive powers of the cells themselves. They may have used up their own as well as all available reserve sources of defense.

Although excessive acidity is of the utmost significance in the development of peptic ulcer, mechanical factors also seem to be of great importance. For example, physiologists have demonstrated that the site of development of experimentally produced duodenal or jejunal ulcer is typical and constant. The ulcer appears one or 2 cm. distal to the point of exit of the gastric contents from the stomach. This is so constant a finding that in experimental studies on animals ordinarily the site of formation of ulcers can be definitely predicted. The

ulcer seems to originate where the gastric contents strike first, and with the greatest force on being expelled from the stomach. Aschoff suggested that mechanical factors are also of importance in cases of ulcers occurring in the stomach; he assumed that such ulcers occur in areas most exposed to traumatization of the acid and gastric contents. Although local chemical reactions in the stomach and duodenum are probably of the greatest intrinsic importance in the formation of peptic ulcer, ulceration can in all probability also be influenced and abetted by extraneous factors, of which several seem of pertinent importance.

#### LOCAL TRAUMA TO TISSUE

Under this heading can be considered the various traumatizing influences which originally lead to aberrations in the mucous membrane or in the wall of the viscus. There may be involvement from the mucosa downward, or disturbances may be present in the submucosal tissue which by virtue of a consequent loss of resistance will the more readily disintegrate and succumb to the eroding process. Smithies suggested, as one of the causes of ulcer, congenital anomalies of tissue or circulatory mechanisms inadequate to stand the daily abuse entailed in the physiologic processes of digestion.

Kenjetzny, Orator and Metzler and Puhl, among others, have expressed the opinion that duodenal and gastric ulcers are the result of inflammatory processes, and that these lesions never develop in healthy mucosa but always as the result of gastritis or duodenitis.

Shallow erosions in the stomach or duodenum may be associated with such systemic diseases as purpura or with certain infectious diseases. Disturbances in tissues of similar histologic characteristics have been demonstrated by Rosenow, who was of the opinion that septic emboli resulting from focal infections, which become deposited as small "nests" in the depths of gastroduodenal tissues, locally destroy resistance, thereby predisposing the tissues to the formation of ulcers. It has been pointed out that injury to tissue may result from a variety of other causes, for example, irritating substances which have been ingested, or roughage, may cause mucosal injury. Gastric ulcers developing in association with foreign bodies, as well as ulcers occurring at the point of maximal mucosal irritation

in cases of diaphragmatic hernia, would be further illustrations of insults to local tissue which are unquestionably of some importance in causing ulcer or in keeping it from healing.

In all probability, however, chronic ulcer seldom develops from these factors alone. Most of the lesions represent only one of the stages of chronic ulceration. For lesions to become chronic, the presence of other factors which keep the original lesions from healing is necessary. But although the factors of chronicity and intermittency may demand other supervening mechanisms, it would seem at least that the soil is by trauma propitiously cultivated for the implantation of chronic ulcer.

#### SYSTEMIC-NEUROGENIC DISTURBANCES

Recognition of the increased tendency for ulcer to develop among certain types of individuals has led to postulations regarding ulcer diathesis. Draper's "anthropometric relations," Muller and Heimberger's "vasoneurotic diathesis," and Hurst and Stewart's "hypergastric diathesis" represent efforts to describe types of persons who are susceptible to ulcer. Incidentally, it has long been known that peptic ulcer may develop or become reactivated following burns or in the course of debilitating diseases.

Substantial corroborative evidence of the importance of the two factors just considered is available from experimental laboratories. There are, however, certain biologic phenomena to which man alone is heir. The application of a yardstick to measure the physical characteristics of patients prone to the development of ulcer has not been very successful because the factor of greatest importance seems to be one that is more psychophysiologic than physical, and one which accordingly can be measured anatomically and physically only with great difficulty. Moreover, this factor seems to be fluctuant rather than constant. The syndrome of ulcer is characterized by periodicity and intermittency, and many chronic ulcers advance to complete cicatrization and healing; obviously, therefore, the factors which were at one time capable of producing and activating the lesions finally may cease to exert their influence and allow the ulcer to go on to quiescence, or even to complete and permanent healing.



Patients with peptic ulcer show a striking uniformity of temperament; but even more striking is the similarity of their mental and nervous reactions. Whether to consider these responses physiologic or psychic seems of no great ultimate importance since the two are inseparable and in the end probably stand in a cause and effect relationship. Patients with ulcers are unusually alert, attentive and keen; frequently they appear to be somewhat over-stimulated, like patients with moderate hyperthyroidism. They are ambitious, intense, high-strung, and they are usually also introspective, suspicious, sensitive, and given to periods of worry and depression. They are persistent in their activities, relentless in the pursuit of their objectives, and oblivious to any physical limitations. They are as a rule willing to accept unusual responsibilities and often live in an environment persistently conducive to the development of great mental tension. The periodicity of symptoms in cases of ulcer frequently is determined by variations in the psychophysiologic influences incident to the patient's daily experiences. During periods of great emotional strain and of prolonged and unrelieved worry, and during long periods of mental or physical fatigue or strain subsequent to misfortunes of any sort, symptoms are likely to be originated or reestablished.

The rapidity with which epigastric pain with the characteristics of peptic ulcer develops following any unexpected misfortune is often remarkable. It has been a consistent experience of physicians treating ulcer that it is most difficult to control the condition if such patients continue working under tension or if they are constantly disturbed, worried and restless while under treatment for ulcer in the hospital. It has been pointed out that, occasionally, patients who present a syndrome suggestive of peptic ulcer do not have ulcer. Such patients are of the same type as those who do have ulcer. Furthermore it has been shown that just as symptoms of ulcer frequently reestablish themselves during periods of stress, so is the forementioned pseudosyndrome also likely to arise as a result of similar psychophysiologic disturbances. There is a further analogy between the two in that just as in cases of uncomplicated peptic ulcer the symptoms usually become readily controllable when the pa-

tient ceases active work, evades responsibility and takes a vacation, so also does the pseudo-ulcer syndrome usually disappear promptly even with only the prospect of a pleasant holiday.

The pertinent analogy between these syndromes and the type of patients who experience them suggests that the disturbance which is at the root of the entire syndrome is identical in both instances, and that this crucial derangement is in the nervous system. Factors which seem capable of causing a periodic reactivation of ulcer, which can prevent the healing of ulcerous lesions, and which at times are entirely capable of bringing forth symptoms mimicking the apparent ulcer syndrome must be of etiologic significance even though there are no demonstrable lesions detectable on exposed gastroduodenal tissues. The variability in the degree and intensity of these psychophysiologic tendencies probably represents the fluctuant factor which determines whether or not and when the syndromes will arise.

It is conceivable that when ulcer is absent and the defensive reactions of the tissue are normally intact the pseudosyndrome of ulcer may nevertheless develop as a result of neurogenic factors. With the return of normal nervous reactions, however, the balance is quickly reestablished and the symptoms disappear. In the event of prolonged persistence of nervous hyperirritability and consequent accentuation of the aggressive factor, or in the presence of increased vulnerability of gastroduodenal tissues, it is suggested that ulcer may easily be the final result. Quiescence or activity of the ulcer syndrome could be an alternating condition dependent on fluctuating psychophysiologic changes, with its resultant mechanical and chemical alterations in the gastrointestinal tract. Marked elevation of the values for acid and pepsin is often noted during periods of excitement and tension, and it may be that one of the mechanisms of ulcer formation is related directly to chemical conditions effected by the nervous system.

#### CLINICAL APPLICABILITY OF HYPOTHESES AS TO THE CAUSE OF PEPTIC ULCER

As has been said, the three factors which stand out prominently on analysis of various hypotheses as to the cause of ulcer in

man are: (1) acid aggression, (2) local trauma to tissue, and (3) systemic neurogenic disturbances, and that it is not a matter of choosing which of these three is the most logical cause of ulcer, because such lesions are probably the result of the combined interaction of several or all of them. Apparently the interaction of these three factors, and unquestionably there are still others, does not occur according to any exact formula: now one, and then another assuming the position of major importance.

Brief illustrative reports of cases are submitted to bring out the suggestion that in different instances different causative agencies assume predominantly important roles.

*Case 1.*—This patient, a man forty-six years of age, had a history of having had indigestion with the typical characteristics of peptic ulcer for twenty-six years. Roentgenograms gave evidence of duodenal deformity and a diagnosis of duodenal ulcer was made. The values for gastric acids and pepsin following the subcutaneous injection of histamine were for total acidity 106, 108, 110, 126, 136, and 148 units; for free hydrochloric acid 88, 94, 96, 100, 102, and 106 units; for pepsin, which is normally less than 500 units, 1,520, 1,520, 1,680, 2,840, 2,360, and 1,560 units. Posterior gastroenterostomy was performed. Three weeks later another estimation of gastric acidity was made, the maximal value for total acids then being 104, and for free hydrochloric acid 98 units. Pepsin at this time was estimated to be 2,620 units.

Obviously in this case the factor of greatest potential danger as far as the reformation of ulcer is concerned rests in the tremendous aggressive potentialities of the gastric acids and pepsin.

*Case 2.*—A girl, aged five years, suffered an attack of acute tonsillitis. Several days later she became weak and vomited large amounts of blood and passed tarry stools. Roentgenograms at the clinic gave evidence of duodenal deformity, assumed to be the result of ulcer. Gastric acidity was not unusual and study of peptic activity failed to show any unusually high values. The tonsils were removed, and cultures made from them were injected into animals; multiple acute ulcerations promptly developed in the gastroduodenal tissues of these animals.

Since tonsillectomy the patient has not had any recurrence of gastro-intestinal hemorrhage, and has apparently been well. She adhered to a bland diet for several months, but no other treatment was advised.

This would indicate that, in certain cases, local traumatization secondary to focal infection would seem to overshadow other factors in the causation of ulcer.

*Case 3.*—A man, aged thirty-one years, entered the clinic complaining of indigestion of three years' duration. A duodenal ulcer was discovered, and gastroenterostomy was performed. He was well for eighteen months. His wife then became ill and he accompanied her to the clinic. Her illness was grave and he was naturally extremely disturbed about her. During this period of apprehension and worry his symptoms of ulcer recurred. Later, his son became ill and died, and he was promptly precipitated into another episode of indigestion, indicating activity of the ulcer. In the following year gastric disturbances were invariably brought on by worry and anxiety about illnesses in his family. Reexamination at the clinic revealed the presence of a gastrojejunal ulcer.

In this last case the neurogenic factor was unquestionably of great significance in the production of the patient's symptoms. When he was relatively calm the forces of defense in his tissues were able to cope with the mechanisms of aggression. With the onset of difficulties, however, these factors of defense became inadequate and ulceration developed.

\* \* \*

Though it is realized that this treatment of the problem of ulcer is mainly a clinical one, it is hoped that it may clarify some of the problems incident to the disease. Furthermore, utilization of the formula for the principal etiologic factors in ulcer may be of some aid in the intelligent planning of therapy, which will be instrumental in treating ulcer more successfully. Obviously, each patient who has ulcer is an individual problem, and the solution of his particular problem depends on specific diagnostic and therapeutic considerations. Thinking of peptic ulcer with this type of formula in mind, however, it is not difficult to assume that the disease which is now designated as "peptic ulcer," and for which a single etiologic factor is demanded is in reality a group of diseases with varying and various causes. These causes may be interrelated, or a single cause may in itself be sufficiently potent in certain cases to cause ulceration.

#### TREATMENT

The diagnosis of peptic ulcer having been made, the next step is selection of treatment. Too often the only alternative is operation or some form of regimen routinely used in all cases.

In planning a regimen of treatment for a patient with peptic ulcer several very im-



portant factors must not be lost sight of. Peptic ulceration represents a disease in which there is localized destruction of tissue by erosive forces inherent in the acid gastric chyme, and, as has been said, the breakdown probably results not from one but from various causes, among which several are important. The treatment of peptic ulcer must therefore concern itself not only with the assuaging of these forces of erosion, it must also make efforts to bolster up the resistance of the besieged gastroduodenal tissues.

Since physiologic, bacteriologic, and clinical observations have attested the fact that the forces of erosion, although perhaps using the same weapon of offense, namely, the acid chyme, are varyingly offensive and are stimulated into action by various and varying means, it is evident that a rationale for defense against peptic ulcer would be more effective if it recognized such changes in offense and directed treatment accordingly.

The tendency still remains to treat the single exacerbation of ulcer as a disease in itself when in reality it constitutes merely a single breakdown in the life cycle of ulcer. One successful stand against the mechanism of aggression does not as a rule end the contending play of forces; ulceration usually remains an active threat, particularly among those patients harboring a persistent physiologic undercurrent which readily gets out of control and sets in motion the eroding mechanism. Treatment must therefore include some consideration of ways and means to keep dormant those forces which may be so difficult to control when they are stimulated into activity.

A general plan for ulcer therapy can conveniently be divided into three stages: (1) the management of complications and the control of symptoms, (2) the planning of a regimen to promote adequate healing of the ulcer, and (3) the prevention of recurrences.

#### THE MANAGEMENT OF COMPLICATIONS AND THE CONTROL OF SYMPTOMS

*Perforation.*—The first responsibility of the physician who is called on to treat a patient who is in the throes of an exacerbation of peptic ulcer is to assure himself that acute perforation has not occurred. To err in this may lead to the gravest conse-

quences, the patient's life frequently depending upon prompt diagnosis and equally prompt institution of surgical measures. In cases of subacute perforation it may be advisable to delay operation until the acute inflammatory reaction has subsided. With the development of subacute perforation, there is usually severe pain in the epigastrium, marked tenderness, and a circumscribed area of rigidity. If, after applying suitable local measures, there is improvement in the general condition and there are no signs of spreading peritonitis, it is advisable to await further improvement before resorting to surgical treatment. After a few days milk should be given in small amounts, and if it is well tolerated, a regimen consisting of frequent feedings of milk and small amounts of alkali can then be instituted. After the pain and all epigastric tenderness and rigidity have disappeared, operation can be performed with definitely diminished risk.

*Hemorrhage.*—Panicky precipitation into emergency operation because of gastroenteric bleeding is not good practice; surgical measures to stop bleeding should be undertaken only after all other approved measures have failed. The necessity for complete rest and thorough relaxation is obvious. Thus the blood pressure is lowered and the tendency to clotting is increased. Morphine should be used in sufficient amounts to induce drowsiness. An ice bag to the epigastrium and hot applications to the extremities are usually advised. The judicious use of blood transfusions has saved many lives. Following grave hemorrhage food should not be taken by mouth until there is evidence that bleeding has stopped or at least has abated to a light oozing. After this, a regimen of frequent feedings of milk and alkalies is instituted. More and a greater variety of food is then added gradually.

Various substances intended to increase the coagulability of the blood have been advised. In cases of mild hemorrhage, however, their use is not necessary, and although in cases of severe bleeding they may have some value, the results have not been especially encouraging.

*Retention.*—The treatment of obstructing peptic lesions is usually surgical. General rules for the therapeutics of peptic ulcer, however, usually are not possible. With

certain ulcers the element of associated pylorospasm is marked, and this may lead to the impression that actual obstruction is present. Occasionally during acute exacerbations of ulcer there is evidence, for a day or two, of slight retention, the result of inflammation and edema. Such lesions should not necessarily be considered surgical because of the transitory delay in emptying of the stomach. Nonsurgical methods of treatment may still have decided usefulness and cure may eventually be possible. If, however, true obstruction from cicatricial stenosis is present, surgical treatment is usually indicated.

In most cases of peptic ulcer in which there is evidence of slight retention or delay in the emptying of the stomach, little attention is required before operation can be undertaken without additional risk. It may be advisable, however, to keep such patients on a liquid diet and to wash the stomach twice daily for several days. There are cases in which emaciation, marked dehydration, and almost complete pyloric closure are present. In such instances a positive fluid balance should be maintained. Intravenous administration of glucose and salt solution is indicated and giving fluids by rectum may help.

The surgical mortality used to be high in cases in which obstruction or marked gastric retention, from whatever cause, was present. Since the institution of proper preoperative measures whereby toxemia, dehydration, and marked asthenia have been eliminated, the surgical mortality is not greater than in uncomplicated cases.

Unless some seriously complicating factor supervenes, it is usually not difficult to accomplish the control of symptoms caused by peptic ulcer. Patients should be kept in bed. Thorough relaxation is important. The diet should consist mainly of milk, given at frequent intervals, and the judicious use of alkalies and atropine hastens return to a comfortable status. Some physicians advocate an initial period during which all food by mouth is withheld, nutritional enemas being given during this period. Others advise the use of intraduodenal or jejunal feedings accomplished by means of a small duodenal tube. In cases in which patients fail to respond to the simpler method of treatment, such methods may be found useful.

#### PLANNING A REGIMEN TO PROMOTE ADEQUATE HEALING OF THE ULCER

After the activity of the ulcer has abated and the patient has become symptom-free, it becomes necessary to formulate a plan which will most efficiently accomplish healing of the lesion. It should not be assumed that quiescence of symptoms indicates a healed or even a healing ulcer; this is a common delusion and one which only too often results in therapeutic failures. With the cessation of symptoms it becomes possible to make a more thorough physical examination and to evaluate the history more leisurely and thoughtfully; the behavior of rates of gastric secretion should be studied and roentgenologic investigation must not be neglected.

Under the discussion of the etiology of ulcer the various factors causing ulcer were divided into three groups: (1) acid aggression, (2) local trauma to tissue, and (3) systemic disturbances, and it was pointed out that in individual cases it was usually possible to ascertain which of these factors was preeminently important. This particular stage in the treatment of ulcer is a very important one. Skillful and thorough evaluation of the relative importance of these various causative factors in a given case, with resultant intensification of efforts at their control or eradication, frequently is the deciding factor between success or failure in cure.

#### COUNTERACTING THE ACID AGGRESSION FACTOR

No form of treatment directed toward the control of symptoms of ulcer can hope to be successful unless it takes into consideration the importance of protecting gastroduodenal tissues and includes measures to control the acid factor.

*Diet.*—The first step in the control of acidity consists in the selection of a correct diet. This should be nonirritating and should contain the various food elements in proper balance, including vitamins and minerals. In addition the diet should not provoke the secretion of acid and it should be able to neutralize acids by combining with them. In some instances gastric acidity can be controlled by means of frequent feedings alone.

At the clinic we practically never find it necessary to restrict the intake of food as drastically or for as long periods as is sug-



gested in other methods of treatment. The amount of food taken is increased rapidly, so that within a period of eight to ten days the patients are usually taking an adequate, though bland, type of diet. This diet is then continued for a period of six months to a year, during which time supplementary feedings between meals and before retiring are advised. It is felt that even after active treatment of the individual exacerbation is completed, the patient should continue to avoid eating stimulating foods or taking drinks that would cause elevation of the gastric acidity.

*Alkalies.*—The adequate reduction of gastric acidity usually requires the use of alkalies. It has been the custom at the clinic to use 2°0 to 300 grains (13.0 to 19.5 gm.) of alkali daily, in divided doses. If administration of this amount of alkali does not control acidity, three to four times the amount may also fail to lower it. The indiscriminate dumping of increasing amounts of alkali into the stomach to force neutralization of acids seems an unphysiologic and at times dangerous procedure.

In certain cases the use of alkalies and a bland diet promptly reduces the acids to entirely satisfactory levels, and throughout the course of treatment no unfavorable responses are noted. There are other cases, however, in which it can be shown that the gastric chyme maintains tremendously high levels of acid concentration, and the values for pepsin in such instances are often grossly accentuated. It is noticeable in some of these instances that if the acidity has been reduced by means of intensive treatment it rebounds to uncomfortable levels at the slightest provocation. The condition in such cases can sometimes be controlled by continuing a stricter diet for a longer time. The administration of alkalies should be continued at frequent intervals, and, sometimes, a change from one to another form of alkali will accomplish reduction of acidity. Large doses of atropine may also help. The repeated use of olive oil throughout the day, and particularly in rather large doses immediately before retiring, may aid in control of symptoms. In such instances it frequently is obligatory to prevent the use of even small amounts of tobacco and other substances possessing secretogogic properties, and usually it is essential in these cases to insist on inten-

sive regimens and continuation of all measures instituted to control acids over a longer period of time, even after symptoms have been relieved.

#### COUNTERACTING THE FACTOR OF TRAUMA TO TISSUE

Any plan of treatment for peptic ulcer should include some provision for the search and eradication of such causes as seem capable of producing trauma to gastroduodenal tissues. The importance of the element of infection is frequently illustrated by the recurrence of activity of ulcer during intercurrent febrile illnesses. Apparently, such innocuous disturbances as common colds or mild infections of the upper part of the respiratory tract often precipitate recurrence of symptoms, and hygienic measures to avoid these, as far as possible, are part of the program of treatment. The eradication of foci of infection in these cases may aid materially in controlling the activity and preventing the recurrence of peptic ulcer. Apart from dealing with infections of the teeth, tonsils, accessory sinuses, and the prostate gland, surgical treatment has at times to be directed to the gall-bladder and appendix if clinical evidence points to involvement of these organs. Finally, debilitating conditions tending toward a diminished defensive power of the tissues require specific attention in addition to measures directed toward the healing of ulcer. More frequently, perhaps, than one might wish to admit, the lack of necessary accessory food factors, arising from prolonged and enthusiastic adherence to restricted diet, may so undermine the patient's resistance as to militate against rather than assist in the control of ulcer. It is particularly important to include enough vitamins in the diet.

A careful evaluation of the patient's history may disclose that the factor of trauma to tissue may in specific instances unquestionably predominate in relative importance over other causes for the formation of ulcer. Although chemical factors may still be important in actually causing erosion, it is suggested that in the absence of local trauma ulcer would probably not have developed. In such instances when it is suggested that a traumatizing mechanism is responsible for setting in action the factors resulting in ulceration, it becomes obvious that treatment must be concentrated

enthusiastically toward the control of such an activating cause. Vaccine prepared from foci of infection occasionally has been useful in controlling symptoms. There are other instances in which special local attention to traumatizing influences will promptly result in the cure of such lesions. One need only consider, as examples, gastric ulcer associated with such foreign bodies in the stomach as hair-balls or bezoars, and similar lesions which develop in cases of diaphragmatic hernia at the point at which herniation through the diaphragm takes place. In these cases prompt cure of the ulcer results when the cause of irritation is removed or corrected.

#### CONTROLLING THE SYSTEMIC FACTOR

If it is possible by dietetic, hygienic, and other means to improve the general health of the patient, it usually becomes appreciably easier to control the symptoms of ulcer. The systemic factor, which seems to me of greatest importance etiologically and therapeutically in some cases of peptic ulcer, is one that has its origin in the nervous system.

Regardless of the exact mechanism brought into play, factors which can influence periodic reactivation of ulcer can prevent the healing of ulcer, and at times such factors are entirely capable of causing symptoms mimicking the syndrome of ulcer although ulcer is not present. Such factors must be of importance in the cause of this syndrome and certainly must be contended with in its treatment. It would seem to me also that no rationale for the treatment of peptic ulcer can afford to ignore neurogenic factors when such a plan of action is intended to cure ulcer. The control of these neurogenic factors can usually be accomplished, but it frequently requires much patience, perseverance and tact.

Certain patients deny the relationship of periods of worry and strife to their symptoms and yet closer questioning and observation leaves little doubt as to the intimate relationship between the two. There are other patients whose external appearance of composure and tranquility hides a veritable turmoil of emotions which remain buried and unsuspected until careful study and kindly investigation stimulates the understanding and confidence which brings them to light. When the importance of

these nervous factors is discussed with patients, they frequently begin a search through their past experiences and often are able to satisfy themselves as to the interrelation of worry and their symptoms. With the dawn of this understanding comes confidence, and then cooperation. With this the battle is half won. It then becomes less difficult to convince them that it is necessary to avoid unusual mental fatigue or unnecessary responsibility even when they are feeling well and they can then understand that such nervous stresses may precipitate a recurrence of symptoms. Sometimes it is possible to change the patient's mental reactions to the usual disquieting influences incident to daily life. A very serious obstacle blocking the way toward permanent recovery will have been removed if patients can be taught to accept these experiences less impetuously, to do things more slowly and less intensely, and to develop a spirit of equanimity toward incidents tending to perturb and worry them.

At times it is possible for patients to arrange their work so that they can devote some time each day to play or to the pursuit of some hobby. They should be encouraged to take more vacations and, whenever possible, they should arrange to be away from work for part of the day, several times each week. I usually encourage them to lie down and rest for a time after the noonday meal. They should also utilize the occasion of the between-meal feeding as a brief respite from worry and work. They should be advised to get nine or ten hours of sleep at night, and, if this is not possible without sedatives, I frequently advise small amounts of bromide or barbiturates. There seems to be no doubt that treatment is carried out more successfully, symptoms disappear more quickly, and satisfactory levels of gastric acidity are attained more easily if thorough relaxation can be accomplished. We at the clinic therefore use sedatives and belladonna in rather large amounts.

#### COUNTERACTING UNUSUALLY ACTIVE NEUROGENIC FACTORS

There are certain cases in which the entire syndrome of ulcer, from its inception and throughout its cycle, seems to be related to the nervous system. The patients are usually extremely intent, driving types, and whenever some particularly disquieting event transpires in their lives, symptoms of



ulcer develop. It is suggested to them that in the absence of such disturbing factors their ulcer would in all probability remain quiescent, because symptoms only develop in conjunction with such experiences.

When in a particular case all the evidence seems to point to the fact that the neurogenic factor predominates in importance over others, obviously intensification of methods to deal with this factor are essential. The fundamentals of treatment must, of course, not be neglected, but in such instances special efforts should be made to bring under control those disturbances which have their origin in the nervous system. In addition to utilizing all the means previously discussed, it may be necessary in extreme cases to advise prolonged periods of rest, preferably in a changed environment. Occasionally it actually becomes necessary to suggest that patients change the location of their work, or even their occupation if it is impossible to bring about the relaxation that is so absolutely essential for recovery.

#### THE PREVENTION OF RECURRENCE

The first prerequisite to the prevention of recurrence resides in the physician's understanding that the individual breakdown of tissues is a mere link in the chain of the life cycle of ulcer. He must not be satisfied when he has accomplished cessation of symptoms; he should insist on continuation of various methods of treatment until there is evidence that adequate healing of the ulcer has taken place. It is absolutely essential that the patient understands that his disease remains a perennial problem. I attempt to explain to such a patient that the process can be likened to a brook in a meadow, periods of activity of the ulcer corresponding to periods of flood when the entire meadow is inundated. After the waters recede into their normal channels everything looks serene and peaceful, but the brook, like the ulcer, is still there. By proper precautionary measures floods may be avoided or their destructive force mitigated. Such a patient is made to understand that at certain times the tendency to recurrence is increased, and that at such times additional precautions are necessary. During periods of unusual tension, worry, fatigue, and during episodes of intercurrent

infection, these patients are taught to be more cautious about their selection of food, and to eat between meals and take two or three alkalies daily. If in addition they can slow their tempo of living and develop equanimity toward inevitable disturbing incidents they can usually maintain the ulcerous condition in a state of quiescence.

If one can further supplement these measures by making available a substance that will help reduce the gastric aggression mechanism and increase the resistance of tissues to erosion, treatment of peptic ulcer will be simplified. The development of such a substance, which is hormonal in action and can be utilized in maintenance doses to protect against suddenly arising ulcerating tendencies, is at present occupying much of our time and attention. I have been using a duodenal extract as a supplement to approved methods of treatment which gives promise of fulfilling some of these requirements. If it proves successful, another valuable aid in the treatment of peptic ulcer will become available.

---

**Blood Changes in Arthritis**—Specific forms of infectious arthritis are usually secondary manifestations of a blood stream infection, the bacteremia resulting from some primary focus. In many of these cases the exciting microorganism can be recovered not only from the joint fluid but from blood cultures as well. In many instances, however, the bacteremia is of a temporary character, and blood cultures may fail to yield the etiologic agent. When these specific joint infections are acute, the leukocytes are usually elevated, with an increase in the total polymorphonuclear count and in the percentage of immature cells. In the more chronic forms, such as those caused by the tubercle bacillus or the spirochete pallidum, the white count may show slight, if any, elevation, but even in chronic cases the Schilling count will usually show some shift to the left. An increase in the sedimentation rate of the red blood cells is also one of the usual findings in specific bacterial infections of the joints, and in general it may be said that the more active the infection, the higher will be the sedimentation rate. —*Cecil, New York State J. Med., October 15, 1936.*

# THE JOURNAL

OF THE

## Medical Association of the State of Alabama

---

*Editor-in-Chief*

FRED W. WILKERSON.....Montgomery

*Associate Editors*

M. Y. DABNEY.....Birmingham

W. D. PARTLOW.....Tuscaloosa

J. N. BAKER.....Montgomery

DOUGLAS L. CANNON.....Montgomery

---

Please send in promptly notice of change of address, giving both old and new; always state whether the change is temporary or permanent.

---

Office of Publication

519 Dexter Avenue.....Montgomery, Ala.

---

Subscription Price.....\$3.00 Per Year

---

November 1936

---

### RACIAL ASPECTS OF CORONARY SCLEROSIS

It has long been known that hypertensive heart disease and syphilitic heart disease occur far more frequently among negroes than in white patients. And, conversely, angina pectoris and coronary sclerosis appear to be less prevalent among colored people than in whites.

Johnston,<sup>1</sup> of Durham, N. C., has attempted to shed more light upon this subject and has recently reported the results of his study of "the clinical and autopsy records of four hundred consecutive autopsies, one hundred each in white males and females and one hundred each in negro males and females, all patients being forty years old or older, irrespective of the cause of death, in order to determine the presence and degree of sclerosis of the coronary vessels."

His findings tend to affirm and strengthen existing beliefs in regard to racial and sex differences in heart disease. His figures are in accord with the well-established fact that coronary disease is less frequent in women than in men and he found that syphilitic aortitis was vastly more common

in the black than in the white. Yet, the colored were but little affected by coronary sclerosis, while its incidence was high among the white subjects. Why this state of affairs exists gives rise to interesting speculation, but no very definite causes can be ascertained. That the colored race is to a tragic extent riddled by syphilis is easily explained, but the fact that it has, at one and the same time, more hypertensive heart disease and less coronary sclerosis is something to give us pause. Until more is known, we are compelled to agree with those who claim that the negro's nervous system is less complicated and highly developed than that of the white man and, therefore, he escapes those nervous and mental influences which, it is alleged, lead the white race to coronary sclerosis, angina pectoris, diabetes, gastric ulcer, thyroid disorders and a horde of neurasthenic and psychasthenic states.

The report of Johnston is stimulating and instructive and he approaches his subject with an open mind. It is to be hoped that additional studies along these lines will be made. The author's concluding paragraphs are:

"Although the evidence herein presented is not entirely conclusive it at least indicates that there may be definite differences in the incidence of coronary disease between members of the white and of the negro races. The etiological factors in the production of coronary disease are at present poorly understood; if faulty hygiene has any bearing upon the subject, one would expect the negro to be much the more susceptible.

"A study of the autopsy records of four hundred patients above the age of thirty-nine years showed the incidence of marked coronary sclerosis to be 24 per cent for white males, 9 per cent for negro males, 10 per cent for white females, and 4 per cent for negro females.

"Coronary occlusion with myocardial infarction, either recent or old, was found in 9 per cent of the white males, 4 per cent of the negro males, 4 per cent of the white females, and 2 per cent of the negro females.

"The evidence suggests that members of the white race are much more susceptible to coronary sclerosis than are negroes."

---

1. Johnson, Christopher: Racial Differences in the Incidence of Coronary Sclerosis, *Am. Heart Journal* 12: 162 (August) 1936.



### MATERNAL MORTALITY

Resume' of a maternal mortality study made in Birmingham and Jefferson County some months ago was published in "The Association Forum" of this Journal in the issue of August, 1936. The report, which is a well prepared document and from which the resume' was made, has been printed by the State Department of Health and distributed to the members of the State Medical Association. Careful study of this report reveals some most interesting facts. Excellent measures for the reduction in the unnecessary loss of life associated with child bearing are recommended by the Committee. These procedures should be followed by every physician engaged in obstetrics.

This study has revealed, also, some of the underlying causes of maternal mortality in Jefferson County, which are perhaps similar throughout the State. Specific procedures are recommended that will aid materially in the prevention of avoidable maternal

deaths. The greatest burden of responsibility for lowering the maternal death rate rests upon the physician. To accomplish the desired results will require the intelligent action of every member of the medical profession engaged in the care of women during pregnancy and labor.

We earnestly urge each physician in Alabama to study this report diligently and to apply the recommended corrective measures for lowering maternal mortality. It is a splendid report, giving to the medical profession some valuable information. The members of the Committee who have worked earnestly to make it possible are to be commended for their efforts in making it available. The interest manifested by the medical profession in maternal care has prompted the distribution of the report. We are confident of proper reception of the opinions set forth and feel sure that their application will aid materially in the reduction of maternal mortality in Alabama.

---

## DEPARTMENT OF PUBLIC HEALTH

### BUREAU OF ADMINISTRATION

J. N. Baker, M. D.  
State Health Officer in Charge

### A CHALLENGE TO STATE HEALTH OFFICERS\*

For a score of years it has been the dream of health leaders, both national and state, to see the benefits of modern scientific public health practices, now enjoyed by urban dwellers and accepted by them as a necessary part of a municipality's obligation to its citizens, so extended as to embrace the vast rural population, so important to the growth and progress of our nation as a whole. The consummation of this dream is now possible in each state, through wise and judicious expenditure of the Federal monies made available to State health departments through the United States Public Health Service. One of the prime purposes of this Federal grant to

states is to stimulate and aid in the building of sound health programs for the vast rural stretches of this nation. This opportunity offers a ringing challenge to every State health official, all of whom have major rural health problems of varying intensity and importance. Particularly applicable is this challenge to the South and West whose populations are still so predominantly rural. Here, too, we find most prevalent the county unit of government, which so readily lends itself to health organization either for a single county, where the population justifies; or by a fusion of two or more smaller counties under one health director.

In order to give an added impetus to a much needed and necessary local service, the participation on the part of the Federal government in such an expanded rural health program is purely stimulative and not paternalistic. This grant, if not properly interpreted and wisely expended by those entrusted with its administration, will likely be withdrawn in whole or in part. Local participation in health work, both financially and administratively, has

---

\*Radio broadcast by the State Health Officer of Alabama over a national network, delivered during the annual meeting of the American Public Health Association, New Orleans, October 20-23, 1936.

proven to be so sound in principle that it should never be ignored. It is quite in order, however, to extend State or Federal subsidies, or both, to a county or community eager and willing to do for itself. This trinity of forces, Federal, State and local, acting in unison, gives hopeful promise of the building of a nation of men sturdier and of finer physical fibre than has heretofore been possible. There are, in the United States 3,098 counties; of these but 811, or 26.1%, are enjoying the benefits to be reaped from a type of health service believed to be best adapted to rural areas. There still remains 71.3% of our rural population not so protected.

In Alabama, for the administration of whose health program the present speaker is responsible, the county plan of organization for all health activities, both for the county and for municipalities included therein, has been in continuous operation for 22 years. In fact, Alabama boasts the second full-time county health unit in the United States, organized in 1914; the first being organized in the State of Washington in 1911. During this period, organization for health work on an exclusively all-time basis has steadily advanced until, at present, 57 of the 67 counties of this State, and representing some 92% of the population, are protected. To-day, the people of Alabama so thoroughly appreciate the value of organized health work that no obstacles, other than financial, preclude complete organization. What has been done in Alabama can likewise be done in other states.

Finally, it should be remembered that a nation's worth, rating, and dominance hinge largely upon the mental alertness and vigour of its citizens. The human mind, in order to soar to its most lofty and useful heights, must be housed and nourished in a sound body.

NEXT MEETING  
BIRMINGHAM  
APRIL 20-22, 1937

## BUREAU OF LABORATORIES

\* James G. McAlpine, Ph. D., Director

### CARRIERS\*

#### IV. THE ROLE OF CARRIERS IN CERTAIN DISEASES

(Continued)

The outbreak of amebic dysentery which centered in Chicago in 1933 brought to light certain facts which have been more or less ignored by students of preventive medicine. To cite a few, the following might be mentioned: (1) amebic dysentery is not a tropical disease entirely but occurs frequently in temperate climates; (2) many apparently well individuals may be carriers of *Endameba histolytica*; (3) water may become infected with this organism, act as a vehicle and ordinary chlorination will not kill the cysts, and (4) as McCoy<sup>1</sup> has stated "we do not have sufficient information governing transmission of this disease to enable us to take precisely directed and fully effective measures for its suppression."

Craig,<sup>2</sup> in his recent book on this subject, has made a distinction between amebiasis and amebic dysentery. To use his definitions: "By the clinical term 'amebiasis' is meant the invasion of the tissues of men by the pathogenic *Endameba histolytica* . . . and symptoms of the infection vary all the way from slight digestive disturbances to the most severe symptoms of amebic dysentery or amebic abscess of the liver or other organs. By the term 'amebic dysentery' is understood a bloody, mucoid diarrhea caused by *Endameba histolytica* and occurring as one of the manifestations of amebiasis." The cysts of *Endameba histolytica* are the transmitting agents of the infection because when swallowed they can resist the action of the gastric juice. And these, according to Craig,<sup>3</sup> "seldom occur in the stools of patients having acute diarrhea or dysentery, such patients are usually not infective, but it is the individual who is con-

1. McCoy, G. W.: Some Facts and Limitations in Amebic Dysentery Control, Pub. Health Rep. 49: 359-360 (March 16) 1934.

2. Craig, C. F.: Amebiasis and Amebic Dysentery, Springfield, Ill. Charles C. Thomas, 1934.

3. Craig, C. F.: Epidemiology of Amebiasis, J. A. M. A. 103: 1061-1063 (Oct. 6) 1934.

\*Fourth in a series. The first appeared in the August issue.



valescent from dysentery, or who is apparently healthy or suffers from indefinite gastro-intestinal symptomatology, who is a source of infection to those about him, as the cysts occur in semiformed or formed stools in large numbers."

In discussing the prevalence of amebiasis in its various forms, Meleney<sup>4</sup> has stated, "It is now generally recognized that in temperate zones having reasonably good sanitation from five to ten per cent of the population harbor *Endameba histolytica*. In poorly sanitized areas of the temperate zone, such as Korea and China, the incidence varies from about 25 to 50 per cent. Our state-wide survey in Tennessee showed an average incidence of 23 per cent, with a wide variation in different parts of the State. . . . The rates of infection just quoted do not mean that such a large proportion of the people are suffering from symptoms produced by the dysentery ameba. Most infected people may be classed as 'carriers' and never have and perhaps never will suffer from amebic dysentery. But these people are potential sources of infection for others who, when they become infected, may develop severe symptoms. All infected persons are therefore of concern to the community."

There has been a great deal of discussion on the relative importance of the carrier in the dissemination of this disease. It will be seen from the above that Meleney believes they are dangerous and extends this characteristic to those who are public food handlers. Craig<sup>3</sup> maintains that food handlers employed in restaurants, etc., are the chief transmitters in urban areas when filtered and impounded water supplies and the sanitation are otherwise excellent. Despite the fact that Spector and Buky<sup>5</sup> have shown that the cysts do not survive more than ten minutes after drying on the hands, he still thinks there is ample time to infect food. On the other hand McCoy and Chesley<sup>6</sup> claim that the carrier problem has re-

ceived "more attention in recent years than all other means of transmission combined. . . . A difficulty at once arises in the question as to why there is on the whole so little amebic dysentery in the population when it is well known that the proportion of the population recognized as carriers is very high, frequently from 5 to 10 per cent in the United States."

The question of the examination of food handlers for carriers of *Endameba histolytica* is an important one. McCoy and Chesley<sup>6</sup> point out two difficulties: (1) one examination will only disclose one-third to one-half of the carriers and three examinations will still leave a considerable number undiscovered; (2) who will be classified as food handlers; if all those connected in some form or other with the preparation and handling of food are taken it means a considerable proportion of the whole population. It is interesting to note that the recent Report of the Subcommittee (of the American Public Health Association)<sup>7</sup> on "Newer Aspects of Amebic Dysentery" contains the following statement: "The Committee is of the opinion that the routine examination of food handlers for the purpose of discovering carriers of amebic dysentery is impracticable, and of no value as a public health control measure."

## BUREAU OF PREVENTABLE DISEASES

D. G. Gill, M. D., Director

### SOME OBSERVATIONS ON THE POLIOMYELITIS EPIDEMIC

The poliomyelitis epidemic which occurred in Alabama this year followed the general course of epidemics elsewhere. The first cases which might be considered part of the epidemic had their onset during the week of May 30th. There was a rapid rise in the number of cases, with the peak incidence being reached the week of July 4th. For the next four weeks the number of new cases having their initial symptoms re-

4. Meleney, H. E.: Amebiasis and Amebic Dysentery, J. Tenn. Acad. Sci., 10: 229-239 (Oct.) 1935.

5. Spector, B. K., and Buky, F.: Variability of *Endameba Histolytica* and *Endameba Coli*, Pub. Health Rep. 49: 379-385 (March 23) 1934.

6. McCoy, G. W. and Chesley, A. J.: Control of Amebic Dysentery, J. A. M. A. 103: 1145-1147 (Oct. 15) 1934.

7. McCoy, G. W., Connolly, J. I., Draper, W. F., Gorman, A. E., Ramsey, G. H., and Stovall, W. D.: Report of Subcommittee (of A. P. H. A.) on Newer Aspects of Amebic Dysentery. Seen in manuscript. To be published.

maintained about constant, but beginning with the 1st of August the cases began to decline and by the middle of September the epidemic was almost over. A few cases have continued to be discovered since that time, but many of them date their onset back to earlier summer.

The distribution of the cases by place of residence shows that sixty-seven per cent of them were rural and that thirty-three per cent were living in cities of 2,000 population or over. The predilection for white people noted in other epidemics was confirmed in Alabama since only about twelve per cent of the cases were among Negroes, with the remaining eighty-eight per cent being white. In the counties most infected the Negro population comprises approximately twenty-nine per cent of the total, so the attack rate is less than half that of the white race. No satisfactory explanation has ever been offered for this racial difference.

The age incidence of the cases that have been analysed shows that forty-nine per cent were under five years of age. There were a small number under one and then approximately the same number for each year from one to four. For the next five years, five to nine, there were thirty-one per cent of the cases, and the ages, ten to fourteen, and fifteen plus, each had ten per cent of the total. In some epidemics it has been noted that rural cases tend to occur in the older age groups, while the urban child contracts the disease younger. The explanation offered is that the city child through exposure develops an earlier immunity, and when an epidemic occurs the older children are immune, while the country child, not being previously exposed, is a ready victim of an epidemic. This has not been borne out in Alabama this year as there have been, if anything, more older children and adults affected in the cities. The absence of any prior epidemic of this disease in the State may account for the uniform susceptibility.

During an epidemic many non-paralytic cases are reported, but an attempt is being made to officially register only those cases with paralysis or definite weakness. When this is done the epidemic is found to have been as severe as the 1935 outbreak in North Carolina and Virginia.

## TREATMENT OF CONGENITAL SYPHILIS

| Week | Drug  | Week   | Drug                     |
|------|---|--------|--------------------------|
| 1    | Sulpharsphenamine, 1/5-2/5 of dose below                            | 39     | Mercury or Bismuth       |
| 2    | Sulpharsphenamine   | 40     | Mercury or Bismuth       |
| 3    | Sulpharsphenamine   | 41     | Mercury or Bismuth       |
| 4    | Sulpharsphenamine   | 42     | Sulpharsphenamine        |
| 5    | Sulpharsphenamine   | 43     | Sulpharsphenamine        |
| 6    | Sulpharsphenamine   | 44     | Sulpharsphenamine        |
| 7    | Sulpharsphenamine   | 45     | Sulpharsphenamine        |
| 8    | Bismuth salicylate (weekly) or Mercury by inunction daily (1-2 gm.) | 46     | Sulpharsphenamine        |
| 9    | Bismuth salicylate  | 47     | Sulpharsphenamine        |
| 10   | Bismuth salicylate  | 48     | Sulpharsphenamine        |
| 11   | Bismuth salicylate  | 49     | Sulpharsphenamine        |
| 12   | Sulpharsphenamine   | 50     | Bismuth or Mercury       |
| 13   | Sulpharsphenamine   | 51     | Bismuth or Mercury       |
| 14   | Sulpharsphenamine   | 52     | Bismuth or Mercury       |
| 15   | Sulpharsphenamine   | 53     | Bismuth or Mercury       |
| 16   | Sulpharsphenamine   | 54     | Bismuth or Mercury       |
| 17   | Sulpharsphenamine   | 55     | Bismuth or Mercury       |
| 18   | Sulpharsphenamine   | 56     | Bismuth or Mercury       |
| 19   | Sulpharsphenamine   | 57     | Bismuth or Mercury       |
| 20   | Mercury or Bismuth  | 58     | Bismuth or Mercury       |
| 21   | Mercury or Bismuth  | 59     | Bismuth or Mercury       |
| 22   | Mercury or Bismuth  | 60     | Sulpharsphenamine        |
| 23   | Mercury or Bismuth  | 61     | Sulpharsphenamine        |
| 24   | Mercury or Bismuth  | 62     | Sulpharsphenamine        |
| 25   | Mercury or Bismuth  | 63     | Sulpharsphenamine        |
| 26   | Sulpharsphenamine   | 64     | Sulpharsphenamine        |
| 27   | Sulpharsphenamine   | 65     | Sulpharsphenamine        |
| 28   | Sulpharsphenamine   | 66     | Sulpharsphenamine        |
| 29   | Sulpharsphenamine   | 67     | Sulpharsphenamine        |
| 30   | Sulpharsphenamine   | 68     | Bismuth or Mercury       |
| 31   | Sulpharsphenamine   | 69     | Bismuth or Mercury       |
| 32   | Sulpharsphenamine   | 70     | Bismuth or Mercury       |
| 33   | Sulpharsphenamine   | 71     | Bismuth or Mercury       |
| 34   | Mercury or Bismuth  | 72     | Bismuth or Mercury       |
| 35   | Mercury or Bismuth  | 73     | Bismuth or Mercury       |
| 36   | Mercury or Bismuth  | 74     | Bismuth or Mercury       |
| 37   | Mercury or Bismuth  | 75     | Bismuth or Mercury       |
| 38   | Mercury or Bismuth  | 76     | Bismuth or Mercury       |
|      |   | 77     | Bismuth or Mercury       |
|      |   | 78     | Bismuth or Mercury       |
|      |   | 79     | Bismuth or Mercury       |
|      |   | 80-132 | Probation. No treatment. |

Thereafter: Prolong follow-up with physical and blood Wassermann re-examinations every 6-12 months until puberty is passed; and if possible thereafter at least until early adult life is reached.

| Dosage of Arsenical | Intramuscular (Sulpharsphenamine) | Intravenous (Neoarsphenamine) |
|---------------------|-----------------------------------|-------------------------------|
| Under 2 weeks       | 0.05 gm.                          | 0.03 gm.                      |
| 2-12 weeks          | 0.01                              | 0.05-0.1                      |
| 3-9 months          | 0.15                              | 0.1-0.15                      |
| 1-2 years           | 0.2                               | 0.15-0.2                      |
| 2-3 years           | 0.25-0.3                          | 0.2-0.3                       |
| 3-8 years           |                                   | 0.3-0.5                       |
| 8-12 years          |                                   | 0.5-0.6                       |

## Dosage of Bismuth

2 mgm. of bismuth per kilometer of body weight.

## Dosage of Mercury by inunction

1-2 gm. daily.

1. Early congenital syphilis should be treated continuously without rest periods.

2. Test blood Wassermann every three-four months during treatment and every two months during no treatment.

3. Test spinal fluid about 28th week and at end of first year of treatment.

4. In late congenital syphilis treat like late acquired syphilis. The aim is symp-



tomatic relief and good health and with little emphasis on serologic reversals. Rest periods do no harm.

5. Best results are obtained if treatment is begun before children are four years of age.

---

## BUREAU OF HYGIENE AND NURSING

B. F. Austin, M. D., Director

### STANDARDS OF PRENATAL CARE

Directors of State bureaus of child hygiene met at the Children's Bureau in Washington in October 1924. Acting upon suggestions made at that meeting and in cooperation with the Children's Bureau, a committee of outstanding obstetricians was appointed to draw up standards of prenatal care to be recommended for physicians to use at clinics and in private practice. These standards were approved by each member of the Committee composed of such men as Drs. McCord of Emory, Lobenstine of New York, Miller of Tulane, De Normandie of Boston and others. The Committee has since gone over the standards and again approved them.

For the information of the physicians who practice obstetrics in Alabama an abstract of the "Standards of Prenatal Care" as set forth by the Committee follows:

I. The physician should obtain data at the first visit concerning: A. The patient's history regarding tuberculosis, scarlet fever, tonsillitis, rheumatism, diphtheria, surgical conditions, accidents, operations and menstruation. B. The character of previous pregnancies and labors. Secure data concerning period of gestation, complications, and onset, character and duration of labor, character of puerperium, child born dead or alive, premature, macerated. If dead, cause of death. Breast fed. C. Nature of present pregnancy with date and character of last menstruation, nausea, vomiting and quickening.

II. The physical examination should include: (1) Blood pressure, temperature, pulse and weight. (2) Skin, nutrition, head, mouth, neck, chest, heart, lungs, breasts, extremities. (3) Abdominal examination, palpation, auscultation and menstruation. (4) Vaginal examination during the last month of normal gestation should never be made without strict aseptic precautions. Rectal examination should be substituted. This is to determine existence of pregnancy, position of uterus, presence of pelvic tumor, or venereal disease. Speculum examination of cervix and vagina advised in early pregnancy if indicated. In presence of vaginal bleeding at any period of gestation only rectal or aseptic vaginal examination should be made. (5)

Complete pelvic measurements. (6) Taking of blood for Wassermann reaction and hemoglobin test. (7) Urinalysis. Specific gravity, albumin, sugar. Microscopic examination of sediment as a matter of routine and necessity if albumin is present. If there is any evidence of trouble, a twenty-four hour specimen should be secured.

II. When pregnancy is determined minute instructions should be given to the patient in the hygiene of pregnancy. The services of the personnel of the county health department are available to physicians and prenatals to aid in this phase of the work. These services are rendered in conformity to the wishes of the individual physician. Instruction should include such items as diet, exercise, rest, sleep, recreation, clothing, baths, care of the breasts, teeth, kidneys and bowels, hygiene of the home and preparation for delivery and mental hygiene.

It is urged that the prenatal patient should be examined once a month during the first six months, then every two weeks or oftener as indicated. Malpositions can be determined and may be corrected. At each visit the patient's general condition should be recorded, blood pressure taken, urinalysis done, pulse and temperature recorded, and patient's weight recorded.

Each patient should be instructed at her first visit to report promptly to the physician anything that may affect her well-being, especially the following symptoms or signs: Obstinate constipation, shortness of breath, acute illness, persistent or recurring headache, recurring nausea and vomiting, visual disturbances, dizziness, pain in the epigastrium, edema, changes in urine or in the type of micturition, severe pain in the lower abdomen or vaginal bleeding. In case of vaginal bleeding or low abdominal pain the patient must be advised to go to bed at once and send for her physician. Evidences of toxemia must be carefully observed at all times.

Mothers can be spared much distress and disease and unnecessary maternal and infant deaths can be prevented only by careful study of each case through early and repeated examinations and putting into practice known methods of procedure.

We, therefore, urge all physicians who practice obstetrics to adopt the standards set forth by the Committee working in conjunction with the Children's Bureau.

---

## BUREAU OF SANITATION

G. H. Hazlehurst, C. E., M. C. E., Director

### SOIL EROSION AND MALARIA

Soil erosion has been defined as the wearing away of land surfaces by the action of water, winds and other natural agencies. That caused by the action of water has a relation to malaria in some parts of the country. The soil is carried from the uplands to lower areas by runoff water. The

velocity of flow and the type soil and amount of vegetation and timber existing influence the effect of this action.

The suspended particles of soil are deposited in varying amounts where the velocity of the water is reduced. The velocity is reduced where the slope of the drain is flattened, where the channel area is enlarged, where the channel is obstructed by trees, brush, etc., where two drains converge, and in back waters of lakes. The filling of a drain usually causes water to be ponded above the point affected. Mosquito breeding will take place if the water remains a few days during the summer months. There are numerous ponded areas caused from this action which contain water throughout the year. In most cases these areas are covered with vegetation, timber and flottage and are ideal for the production of the *Anopheles quadrimaculatus* mosquito.

The obstruction of drains by timbering operations where no attempt is made to keep brush and tree tops out of the channel, together with the uprooting of trees by storms, contribute to the problem to a very great degree. The clogged channel soon fills with silt and a marshy ponded area is created which becomes worse with each rain.

Tons and tons of soil are moved yearly by our water courses. The channels of our rivers are being filled with sand transported by water in motion. This material is constantly shifting on some streams. Sand bars and blue holes are created during floods. The rivers change their courses unassisted at many places, resulting in large lakes, referred to as dead lakes, being formed as the old portion of the stream beds carry no water when the rivers are at a low stage. Most of these dead lakes and blue holes become suitable for *Anopheles* mosquito breeding. The worse endemic malaria areas are in general located along the large rivers.

Drainage ditches and canals are rendered valueless when filled with silt. This is especially true where an adequate outlet was not secured and where the channels are not maintained properly. There is a canal in Alabama that is being filled at the rate of one-half mile per year with flottage and sand. The water is being diverted into the adjacent lowlands covering many acres,

where *Anopheles* mosquito production occurs. A majority of the people living near this area suffer from malaria and some of the families are moving to other localities.

Newly created undrained borrow pits do not produce many mosquitoes as they are free of vegetation. However, they often become suitable for mosquito production in a few years on account of silt being deposited along their edges which supports vegetation. Fortunately, efforts directed at the proper drainage of these pits have resulted in only a few new ones being left undrained in our State. The State Highway Department specifies that such pits be properly drained. There are some pits being left undrained in a few of the counties by the county road workers.

Artificial lakes are being filled with silt deposits. One may wonder what part this has to play in malaria. Vegetation thrives in shallow water and mosquito production occurs where vegetation and flottage exist. The filling of lake beds occur at the upper portion of the impounded areas where streams enter and this filling seldom extends up to or above the normal water level. The amount of shallow area is gradually increased, thereby increasing the mosquito breeding places. The lake is usually abandoned when it finally becomes filled and drainage canals are then necessary to de-water such marshy areas to prevent mosquito breeding.

The effect of soil transportation by water in motion, therefore, when considered as a whole, has a bearing on malaria incidence. Soil erosion control operations are being carried out; and the prevention of the creation of conditions suitable for mosquito breeding by such work should be of value in the malaria control problem. This should be considered as a valuable result of soil erosion control.

F. B. W.

## BUREAU OF VITAL STATISTICS

Leonard V. Phelps, S. B. in P. H., Director

### SUMMARY OF THE ANNUAL REPORT OF THE BUREAU OF VITAL STATISTICS, 1935

#### *Births*

In 1935 there were recorded 62,455 live births, a reduction of 1,579, compared with the figure for the preceding year. The birth rate (22.2) per 1,000 population is,



with the exception of that in 1933 (21.5), the lowest since Alabama was admitted to the U. S. Birth Registration Area in 1927. The increase in the birth rate in 1934 was largely due to an increase in birth registration which resulted from the birth registration campaign conducted in that year. The white and colored birth rates were 21.2 and 23.9, respectively.

#### *Stillbirths*

Stillbirths numbered 3,004—150 less than in 1934. The stillbirth rate was 45.9 per 1,000 total births, representing a reduction of 1 per 1,000 total births, compared to the figure for the preceding year. The white and colored rates were 32.5 and 66.6, respectively. The colored rate has been approximately twice the white rate for years.

#### *Deaths*

There were 28,616 deaths. The death rate (10.2 per 1,000 population) was slightly lower than the 1934 figure (10.5) and equalled that of 1932. A steady downward trend in the death rate has been evident since 1929. Fluctuations in the mortality rate have very closely paralleled those of the birth rate. The white and colored rates were 8.8 and 12.7, respectively. The colored rate equalled its all-time low of 12.7 recorded in 1933.

#### *Infant Mortality*

Infant deaths numbered 3,906—or 401 less than in 1934. The infant death rate, (62.5 per 1,000 live births) was the third lowest recorded in twenty years and terminated the upward trend of the past two years. The white and colored rates were 51.2 and 80.8 per 1,000 live births, respectively.

#### *Deaths From Childhood Diseases*

The picture presented in 1935 is much more encouraging than that of 1934. In the latter year the death rates from both measles and whooping cough were extremely high. In 1935, the death rate from measles was 5.3 per 100,000 population and, although still relatively high, was less than half the figure for the preceding year. The rate from whooping cough (4.9) was, with a single exception (1931), the lowest on record since Alabama was admitted to the U. S. Death Registration Area in 1925. Similarly, the figure for scarlet fever (0.5)

equalled the all-time low record of 1928. New low records were made in the case of diphtheria (4.5), and diarrhea and enteritis under two years (15.5).

#### *Deaths From Other Important Causes*

New low death rates were recorded from the following causes: Tuberculosis all forms (61.8), typhoid fever (2.9), bronchitis (1.8), appendicitis (9.9), and all puerperal causes (59.1 per 10,000 total births). A reduction in the death rate (132.9) from heart disease marked a halt in the upward trend from this disease; the same was true of diabetes (9.2) and homicides (22.1). New high figures were recorded from cerebral hemorrhage (72.4), motor vehicles (20.6), cancer (60.5), and the rate from diseases of the arteries (10.2) equalled the high figure recorded in 1930. A continuation of the upward trend in the death rate from the following diseases was noted: Pneumonia, all forms (86.5), influenza (45.0), suicides (7.5), malaria (11.6) and nephritis (81.1). The mortality rate from syphilis (15.5) remained about the same.

#### *Marriages*

More marriage licenses (32,470) were issued in 1935 than in any other year. Beginning in 1930, the number declined, reaching an all-time low record of 25,102 in 1932 and subsequently increased each year.

#### *Divorces*

A new maximum was also reached in the number (3,774) of divorces granted. As in the case of marriages, the number declined to an all-time low record of 2,179 in 1932 and then steadily increased to its present figure. Apparently, there is a close correlation between the number of marriages and divorces and economic conditions.

---

**The Crippled Child**—What has been done for the crippled child has been, and is increasingly so, the result of collective action among such organizations as the International Society for Crippled Children, private endeavor, professional and lay interest, and public agencies. Finding the young cripple in need of care, treatment, physical restoration, education, and vocational guidance—these constructive steps are the results of an evolutionary process in human endeavor. Unless they lead to placement in productive employment they are without avail.—*The Health Officer, September 1936.*

CURRENT STATISTICS

\*PREVALENCE OF COMMUNICABLE  
DISEASES IN ALABAMA  
1936

|                       | Aug. | Sept. | Estimated<br>Expectancy<br>Sept. |
|-----------------------|------|-------|----------------------------------|
| Typhoid               | 136  | 83    | 101                              |
| Typhus                | 79   | 38    | 19                               |
| Malaria               | 1259 | 1249  | 1320                             |
| Smallpox              | 1    | 0     | 2                                |
| Measles               | 10   | 0     | 30                               |
| Scarlet fever         | 45   | 50    | 116                              |
| Whooping cough        | 24   | 35    | 75                               |
| Diphtheria            | 67   | 130   | 261                              |
| Influenza             | 22   | 33    | 45                               |
| Mumps                 | 54   | 25    | 15                               |
| Poliomyelitis         | 111  | 38    | 7                                |
| Encephalitis          | 1    | 1     | 3                                |
| Chickenpox            | 7    | 2     | 7                                |
| Tetanus               | 12   | 5     | 5                                |
| Tuberculosis          | 362  | 222   | 355                              |
| Pellagra              | 22   | 17    | 52                               |
| Meningitis            | 3    | 6     | 5                                |
| Pneumonia             | 74   | 73    | 60                               |
| Syphi is              | 1059 | 1018  | 183                              |
| Chancroid             | 13   | 13    | 5                                |
| Gonorrhea             | 360  | 309   | 192                              |
| Ophthalmia neonatorum | 2    | 1     | 1                                |
| Trachoma              | 0    | 0     | 0                                |
| Tularemia             | 0    | 0     | 0                                |
| Undulant fever        | 5    | 1     | 2                                |
| Dengue                | 2    | 0     | 0                                |
| Amebic dysentery      | 1    | 0     | 0                                |
| Rabies—Human cases    | 0    | 1     | 0                                |
| Positive animal heads | 82   | 46    |                                  |

\*As reported by physicians and including deaths not reported as cases.  
The Estimated Expectancy represents the median incidence of the past nine years. With the venereal diseases, clinic cases were not included prior to this year.

Medical News

(Secretaries of county medical societies and other physicians will confer a favor by sending for this section of the Journal items of news relating to society activities.)

The Gulf Coast Clinical Society's first annual meeting was held in Mobile, October 16-17. Among the speakers were Dr. L. J. Menville, New Orleans; Dr. Willis Campbell, Memphis; Dr. Fred H. Albee, New York; Dr. W. McK. Craig, Rochester; Dr. L. A. Buie, Rochester; Dr. Harvey Garrison, Jackson, Miss.; Dr. John A. Lanford, New Orleans; Dr. Geo. R. Livermore, Memphis; Dr. O. O. Feaster, St. Petersburg; Dr. R. W. McNealy, Chicago; Dr. J. S. McLester, Birmingham; Dr. Lloyd Noland, Fairfield; and Dr. A. B. Rivers, Rochester.

Officers of the Society are Dr. William R. Meeker, Mobile, Chairman; and Dr. M. A. Lischkoff, Pensacola, Secretary-Treasurer. The Executive Committee is composed of Dr. H. A. Bryan, Pensacola; Dr. Chas. Le Barron, Gulfport; Dr. J. H. Dodson, Mobile; and Dr. R. W. Burnett, Biloxi.

\* \* \*

Speakers who will address the Georgia Pediatric Society's Atlanta meeting, Decem-

ber 10, include Dr. John A. Toomey, Cleveland; Dr. Julius H. Hess, Chicago; Dr. Henry Helmholz, Rochester; and Dr. W. A. Mulherin, Augusta. The Society's Scientific Committee promises a day of interesting and instructive papers.

\* \* \*

Record is made of the passing of Dr. Toll H. Sudduth of Hanceville, October 14, 1936. Said the Cullman County Medical Society of its fellow member: "For seventeen years he practiced medicine in Cullman County and achieved a very high degree of success. He was a fine type of the beloved family physician. He was always courteous, modest, thorough and kind to all people to whom he gave his service; never tiring in his service to humanity, high and low—but ever faithful to his patients in need." Surely no finer tribute could have been paid him by his colleagues.

\* \* \*

Dr. Wilmot S. Littlejohn, Birmingham, announces that he is now limiting his practice to medicine of the nervous system.

\* \* \*

Dr. William R. Britton, formerly of Aniston, is now engaged in the practice of pediatrics in Montgomery.

\* \* \*

Dr. Seale Harris, Birmingham, announces the formation of a partnership with Dr. Seale Harris, Jr., recently Assistant Professor of Medicine at Vanderbilt University.

\* \* \*

The Northwestern Division of the Association, meeting in Florence, October 15, under the vice-presidency of Dr. Merle Smith, was addressed by Drs. Horton Casparis, Nashville; F. L. Chenault, Decatur; Joseph E. Hirsh, Birmingham; J. G. Daves, Cullman; and Price Clayton, Russellville.

\* \* \*

Annual Conference of Secretaries of Constituent State Medical Associations will be held in Chicago, November 16 and 17. Among the speakers will be Surgeon General Thomas Parran of the United States Public Health Service.

\* \* \*

The American Board of Internal Medicine, incorporated February 28, 1936 completed its organization on June 15, 1936. The officers chosen were Walter L. Biering, M. D., Des Moines, Chairman; Jona-



than C. Meakins, M. D., Montreal, Vice-Chairman; and O. H. Perry Pepper, M. D., Philadelphia, Secretary-Treasurer. These officers with the following six members constitute the present membership of the board: David P. Barr, M. D., St. Louis; Reginald Fitz, M. D., Boston; Ernest E. Irons, M. D., Chicago; William S. Middleton, M. D., Madison; John H. Musser, M. D., New Orleans, and G. Gill Richards, M. D., Salt Lake City.

The term of office of each member will be three years, and no member can serve more than two consecutive three year terms.

The organization of the Board is the result of effective effort on the part of the American College of Physicians in conjunction with the Section on Practice of Medicine of the American Medical Association and these two organizations are represented in the membership of the Board on a five to four ratio respectively.

The American Board of Internal Medicine had previously received the official approval of the two bodies fostering its organization, as well as that of the Advisory Board for Medical Specialties and the Council on Medical Education and Hospitals of the American Medical Association.

The purpose of the Board will be the certification of specialists in the field of internal medicine, and the establishment of qualifications with the required examination procedure for such certification.

While the Board is at present chiefly concerned with the qualification and procedure for certification in the general field of internal medicine, it is intended to inaugurate immediately after July 1, 1937 similar qualification and procedure for additional certification in certain of the more restricted and specialized branches of internal medicine, as gastroenterology, cardiology, metabolic diseases, tuberculosis, allergic diseases, et cetera. Such special certification will be considered only for candidates who have passed at least the written examination required for certification in general internal medicine. The operation of such a plan will require the active participation and cooperation of recognized representatives from each of such special fields of medicine.

Each applicant for admission to the examination in internal medicine will be required to meet the following standards:

#### *General Qualifications*

1. Satisfactory moral and ethical standing in the profession.
2. Membership in the American Medical Association or, by courtesy, membership in such Canadian or other medical societies as are recognized for this purpose by the Council on Medical Education and Hospitals of the American Medical Association. Except as here provided, membership in other societies will not be required.

#### *Professional Standing*

1. Graduation from a medical school of the United States or Canada recognized by the Council on Medical Education and Hospitals of the American Medical Association.
2. Completion of an internship of not less than one year in a hospital approved by the same council.
3. In the case of an applicant whose training has been received outside of the United States and Canada, his credentials must be satisfactory to the Advisory Board for Medical Specialties and the Council on Medical Education and Hospitals of the American Medical Association.

#### *Special Training*

1. Five years must elapse after completion of a year's internship in a hospital approved for interne training before the candidate is eligible for examination.
2. Three years of this period must be devoted to special training in internal medicine. This requirement should include a period of at least several months of graduate work under proper supervision in anatomy, physiology, biochemistry, pathology, bacteriology, or pharmacology, particularly as related to the practice of internal medicine. This work may be carried on in any domestic or foreign medical school or laboratory recognized by the Council on Medical Education and Hospitals of the American Medical Association as offering appropriate facilities for this type of postgraduate experience; or it may include a period of at least several months of graduate work under proper supervision in internal medicine or in its restricted and specialized branches in any domestic or foreign hospital, clinic, or dispensary, recognized by the above Council as offering appropriate facilities for this type of postgraduate experience.
3. A period of not less than two years of special practice in the field of internal medicine or in its more restricted and specialized branches.

The American Board of Internal Medicine does not propose to establish fixed rules for the preliminary training of candidates for certification in this field. Broad general principles for training, however, may be outlined, although such suggestions as are made must, of necessity, be subject to constant changes reflecting the dynamic nature of the specialty.

A sound knowledge of physiology, biochemistry, pharmacology, anatomy, bacteriology, and pathology, in so far as they apply to disease is regarded as essential for continued progress of the individual who practices internal medicine. The more factual knowledge of medicine and its basic sciences is not sufficient. The candidate must have had training in their use in furthering his understanding of clinical medicine. This implies practical experience under the guidance of older men who bring to their clinical problems ripe knowledge and critical judgment. Preparation to meet this requirement adequately may be even more difficult to obtain than the so-called scientific training. It may, however, be acquired in the following ways:

- (a) By work in a well-organized hospital outdoor clinic conducted by competent physicians.
  - (b) By a prolonged period of resident hospital appointments likewise directed by skilled physicians.
  - (c) By a period of training in intimate association with a well-trained and critical physician who takes the trouble to teach and guide his assistant rather than to require him only to carry out the minor drudgery of a busy practice.
4. The Board does not consider it to the best interests of internal medicine in this country that rigid rules as to where or how the training outlined above is to be obtained. Medical teaching and knowledge are international. The opportunities of all prospective candidates are not the same. Some may have the opportunity of widening their knowledge by a period of study abroad. Others, at the other extreme, may be restricted to a comparatively narrow geographic area and their detailed training must be obtained in short periods scattered over a long time. Although it is laid down that at least five years must elapse between the termination of the first interne year and the time when the candidate is eligible to take the examination, a longer period is advisable. The Board wishes to emphasize that the time and training are but means to an end of acquiring a broadness and depth of knowledge of internal medicine which the candidate must demonstrate to the Board in order to justify it in certifying that he is competent to practice internal medicine as a specialty. The responsibility of acquiring the knowledge as best he may rests with the candidate, while the responsibility of maintaining the standard of knowledge required for certification devolves on the Board.

#### *Method of Examination*

The examination required of candidates for certification as specialists in Internal Medicine will comprise Part I (written) and Part II (practical or clinical).

*Part I* The written examination is to be held simultaneously in different sections of the United States and Canada and will include:

(a) Questions in applied physiology, physiological chemistry, pathology, pharmacology, and the cultural aspects of medicine.

(b) Questions in general internal medicine.

The first written examination will be held in December 1936, and candidates successful in this written test will be eligible for the first practical or clinical examination which will be conducted by members of the Board near the time for the annual session of the American College of Physicians at St. Louis in April 1937. The second practical examination will be held at Philadelphia near the time of the annual session of the American Medical Association in Atlantic City in June 1937.

The fee for examination is forty dollars which must accompany the application and an additional fee of ten dollars is required when the certificate is issued.

Application blanks and further information can be obtained by addressing the office of the chairman, Walter L. Bierring, M. D., 406 Sixth Avenue, Des Moines, Iowa, U. S. A.

\* \* \*

Dr. J. B. Moxley, a former member of the State Board of Censors and of the Legislature of Alabama, died suddenly in his office in Brantley, October 30th.

\* \* \*

Dr. Walter A. Minsch, until recently Health Officer of Limestone County, Alabama, announces his association with Dr. Sam E. Thompson, Kerrville, Texas—practice limited to diseases and surgery of the chest.

\* \* \*

Among those who appeared before the American Public Health Association and allied organizations in annual session, New Orleans, October 20-23, were the State Health Officer, Dr. J. N. Baker, and his associates, Drs. D. G. Gill, J. G. McAlpine, W. H. Y. Smith and J. S. Hough; Messrs. G. H. Hazlehurst and L. V. Phelps; County Health Officers J. L. Bowman and J. D. Dowling; Dr. Geo. A. Denison, Director of the Birmingham Branch Laboratory, and Dr. A. H. Graham, Director of the Opelika Tuberculosis Study.



# THE JOURNAL

OF

## The Medical Association of The State of Alabama

Published Under the Auspices of the Board of Censors

Vol. 6, No. 6

Montgomery, Alabama

December 1936

### SURGERY OF THE PROSTATE\*

By  
EDGAR BURNS, M. D.  
New Orleans, La.

Prostatic hypertrophy is brought about by a pathologic enlargement of certain portions of the gland. It occurs in about 35% of all men after the age of fifty, and forty per cent of those affected develop obstructive symptoms. Because of its position at the neck of the bladder, growth brings an increasing urinary difficulty and causes secondary changes of back pressure in the bladder, ureters and kidneys. Secondary infections commonly occur and, combined with obstruction, produce multiform disturbances of urination and renal insufficiency. In advanced cases, all the major functions of the body suffer to a greater or less degree.

Discovery of the etiology will likely be followed by means of prevention and simple cure, but, until then, relief can be offered only through some type of operative procedure. Because of the widespread involvement, surgery must of necessity be considered from a broader viewpoint than just the mechanical attack upon the enlarged gland.

The victims of this disease have advanced well into the danger zone of life and any operative procedure is undertaken in the face of many degenerative changes. Some of the elements of danger cannot be measured by scientific tests and neither can their consequences be foreseen, but nature usually earmarks the common dangers and the patient may be fortified according to indications in the individual case.

Advancing age is accompanied by some degree of diminished circulatory reserve through degenerative changes in the blood vessels and myocardium. For this reason, emphasis is placed upon a study of the car-

diovascular system in an effort to measure its ability to carry the increased load.

In studying the genito-urinary system, the factors of primary importance are (1) the nature of the obstruction present; (2) the amount of damage that has been produced in the upper urinary tract and (3) if infection has occurred, whether or not it is of the alkaline variety. The nature of the obstruction present is usually settled when physical examination is completed, with the exception, that in suspected malignancy the final diagnosis rests with pathologic section of tissue removed. Whether or not renal function has been damaged is determined by the blood chemistry and intravenous phthalein. When the specimen of urine is collected for phthalein reading, the patient is catheterized and the amount of residual measured. If the output is 45% or above for one hour, catheterization may be omitted as it is generally considered that such patients are not holding back very much. Routine culture of urine identifies the type of infection and it is of enough importance to justify its being carried out. Plain x-rays are included to settle the question of stone in benign cases, to differentiate between prostatic stone and carcinoma in the hard irregular prostate, and to identify metastatic lesions in the vertebrae and pelvic bones when the prostate is found to be malignant.

Whether or not cystoscopy is included as a part of the preliminary study rests entirely with the individual preference of the operator. Some prefer to examine the bladder neck without anesthesia, feeling that a more accurate estimation of the amount of obstruction can be made; on the other hand, stones and diverticulae can be found by x-ray and a fairly accurate knowledge of the prostate obtained by rectal examination, so that little additional information is obtained by cystoscopy. The passing of a rigid instrument is followed by some degree of trauma, which, in old men, sometimes

\*Presented to the Association in annual session, Montgomery, April 21, 1936.

leads to unpleasant reactions. Unless indicated in the particular case, I have omitted cystoscopy in patients that are to be resected, until they are anesthetized and ready for operation. If the gland is not resectable, nothing has been lost and the patient has had the advantage of a painless examination.

After all information has been assembled, one finds these cases falling roughly into three groups: (1) those with little or no residual whose symptoms may be relieved by a course of prostatic massage; (2) a group in which the condition is not of long enough standing to produce serious damage to renal and cardiac functions. In this group complete diagnosis usually finishes the preparation for operation. (3) Patients in whom the obstruction has existed for a sufficient period to bring about secondary changes in the upper urinary tract with reduction of renal function and associated degenerative changes in the heart and blood vessels. It is this kind of patient that presents a real problem for restoration to some type of livable existence. To resort to catheter life is offering very little as such cases rarely go more than two years. If the patient tolerates a urethral catheter well, the preparation may continue for a long period and some of these cases converted into fair surgical risks. It is desirable to have a phthalein output of 45% or above for one hour, and the non-protein nitrogen below 40 mg. per 100 cc. of blood. Cases are operated on in which this condition cannot be obtained but certainly more risk is involved. If the decrease in nitrogen retention is slow and the patient's general condition poor, with loss of weight and strength, it is safer to do a suprapubic cystostomy and allow the patient to go home for an indefinite period. Cystostomy is performed by a small opening under local anesthesia and is usually followed by little or no postoperative reaction. Many of these cases may be operated on later and normal urination restored.

For the surgical removal of prostatic obstruction, three methods are in popular use today: (1) perineal prostatectomy, as advocated by Young,<sup>1</sup> Hinman<sup>2</sup> and others,

is highly technical and practical only for those especially trained in this procedure; (2) the so-called Fuller-Freyer suprapubic operation, which requires less experience than for the perineal approach, and obviously carries fewer penalties when not properly performed. In the hands of competent operators there should be no difference in the end results of these two methods. For the very large benign hypertrophy, enucleation by one route or the other probably stands today as one of the most satisfactory operations in surgery. (3) Transurethral resection, advocated by Caulk, Davis, McCarthy, Alcock, Bumpus, and many others, is said to carry the following advantages: more economic for the patient in reduction of hospital stay (usually 12 days or less); lessened mortality; equally good end results as to normality of urinary function; better palliative results in carcinoma of the prostate, and a less stormy postoperative course. Operative technic is omitted for obvious reasons, but resection, like prostatectomy, must be well done if a good end result is to be expected. Unless all the obstructing tissue is removed, and a wide open channel left for free passage of urine, frequency and difficulty continue, and the result is unsatisfactory. The limitations of resection cannot be definitely fixed, but certainly bear a very close relationship to the limitations of the operator. Better results are being obtained as experience grows, chiefly because more tissue is being removed—also less trauma is being produced and the operative time cut more than half. Another factor of particular importance in resected cases is the development of deep-seated infection in the remaining prostatic tissue. These patients pass a good stream and carry no residual, but are left with frequency, discomfort and a foul urine. Many of these cases may be cleared up by prostatic massage, which should be started as soon as the danger of hemorrhage is passed. Ten per cent of resected cases have been reported as unsatisfactory because of this condition.

That transurethral resection has become a permanent part of urology, no one can deny, but the widespread impression that it is a perfectly safe and simple operation is far from the truth and should be corrected. The failures that have come from its use by men not well trained in the fundamental

1. Young, H. H.: *Text-Book of Urology*, Philadelphia, W. B. Saunders Co., 1926.

2. Hinman, Frank: *Text-Book of Urology*, Philadelphia, W. B. Saunders Co., 1935.



principles of cystoscopy should not be blamed upon the method itself. Like in any other mechanical procedure, a certain period of apprenticeship must be served before the best results are obtained. Alcock places the minimum at 50 cases.

Special nursing care after resection is perhaps of more importance than after enucleation. Unless the bladder is kept empty by good drainage of the catheter, the danger of hemorrhage and ascending infection is markedly increased. On a fairly large University service where patients cannot afford private nurses, I have been doing a routine preliminary suprapubic cystostomy and feel that results have entirely justified the practice. Some urologists believe that after the bladder is opened, one might as well do a prostatectomy, but after using both methods on poor risks, I feel quite sure that resection is a more benign procedure, unless the prostate is unusually large.

Carcinoma of the prostate constitutes 15 to 20% of all prostatic obstructions. It is not only a frequent but deadly disease, and few urologists of experience doubt the cure of any case by any method. It is essentially silent until one of three things happens: (1) obstruction to the urinary passage; (2) pain from pressure on pelvic nerves; or (3) pain from metastases to the vertebrae and pelvic bones. In very rare instances where small islands of carcinoma are located in a large hypertrophy, and recognizable only on pathologic section, a cure may be obtained by enucleation. When the condition can be diagnosed by physical examination, it is considered hopeless, and all efforts are directed towards the postponement of death by palliative measures. It is here that resection offers some help. A few cases of low grade malignancy may be made comfortable for many months by removal of the obstruction. Deep x-ray therapy may be used in the absence of metastases, and, in a few cases, may slow up the progress of the disease. Hinman<sup>2</sup> states that no case has ever been cured by either x-ray or radium.

The complications of prostatic surgery are (1) hemorrhage, which is of two varieties—primary, which should be controlled before the patient leaves the operating table, and secondary, which should be stopped by one method or another when it

starts, and not after the patient has become exsanguinated; (2) uremia, which is usually foreseen and can be combated; (3) sepsis, usually in the form of an ascending pyelonephritis; it is difficult to guard against and hard to fight, if of any real severity; (4) cardiovascular accidents and bronchopneumonia, and (5) epididymitis, which occurs in about 10% and is rarely of any importance.

#### SUMMARY

Prostatic obstruction is an important surgical disease. Good results from treatment are dependent upon meticulous preparation, operative and postoperative care. When complications arise, they should be met without delay.

#### DISCUSSION

*Dr. Walter Scott (Birmingham):* It is a real pleasure and a distinct honor to be asked to discuss Dr. Burns' paper. Unlike so many of us, Dr. Burns is not only an outstanding and experienced urologist, but also has the happy faculty of presenting his subjects forcefully and clearly. This paper of today is no exception. I heartily endorse and agree with everything he has said. In only a few minor points might I say "I differ." The stress he has laid upon the necessity of adequate preoperative care is especially pleasing. Lack of technical skill and experience may cause a poor functional result, but improper preoperative treatment will certainly result in a stormy, prolonged convalescence and probably death. With Dr. Burns I emphasize the necessity of proper preoperative care. In this preoperative care, bladder drainage is paramount. To obtain it Dr. Burns does cystostomy; we prefer an indwelling urethral catheter, believing it to be less of a shock and equally as effective. Furthermore, the length of hospitalization is definitely lessened. It is true that a certain very small percentage of patients will not tolerate a catheter. In these we drain suprapubically. Cystoscopy with us is a routine part of the examination, frequently, not at first but when the acute symptoms have subsided and always before operation. Br. Burns' grouping of these cases is a very practical one. In the cases in the the second group, namely, "those cases in which the condition is not of long enough standing to produce serious damage to renal and cardiac functions," the best results should be obtained. Why wait until kidney and cardiac complications have set in? If we do and then operate, even if we remove the offending prostate, we still have a semi-invalid on account of the damaged kidneys and heart. I certainly agree that a real problem is presented in those cases of long standing with serious damage to the cardio-renal system. With complete bladder drainage, proper rest and diet, the majority can be got in shape for operation. It is our custom never to operate until the kidney function has become stabilized, whether high or low. From what Dr.

Burns says, I believe he thinks well of prostatic resection. I do too, but I am afraid he is not the enthusiast I am. In prostatic carcinoma it is a Godsend; in the early cases of hypertrophy it is the ideal operation; in the long-standing cases with the very large glands it is certainly less of a shock and has a much lower mortality than a prostatectomy. Those cases requiring two or even three resections are less shocked and their hospital stay is much shorter than following one prostatectomy. I believe that prostatic resection, or some similar operation, will soon supplant all forms of prostatectomy.

## WILLIAM CRAWFORD GORGAS\*

### HIS CONTRIBUTION TO CIVILISATION

By  
J. N. BAKER, A. B., M. D.  
Montgomery  
State Health Officer of Alabama

It is indeed a privilege to come to you upon this significant occasion with words of greeting and an attempt to present a brief review of the life and work of William Crawford Gorgas, the world's greatest sanitarian, Alabama's most distinguished citizen and public benefactor. That I was privileged to have known this man personally, and to have served under his leadership during the World War, will always be a treasured memory.

Many present this evening no doubt know that Gorgas was born in Mobile, Alabama, October 3, 1854—a date not only we who are assembled here but all Alabamians should learn to revere and commemorate.

The name of Gorgas was known in this vicinity even before William Crawford added significance and honor to prestige and respect. His grandfather, a direct descendant of the Hapsburg family, ruling in Spain at that period, migrated to America from Holland in 1684. The grandfather, Jacob Gorgas, serving as a Second Lieutenant in the Revolutionary War, transmitted the fighting strain to his son, Josiah Gorgas, who graduated from the United States Military Academy in 1841. Immediately upon his graduation Josiah Gorgas served his country in the Mexican War. At the beginning of the War of Secession, he joined the cause of the land of his birth, and moved to Alabama with his family. In

1864 Josiah emerges from the pages of history as Brigadier General, having served as Chief of the Ordnance Bureau in Richmond, Virginia, until the close of this tragic struggle.

In 1870 Josiah Gorgas was elected Vice-Chancellor of the University of the South, Sewanee, Tennessee, and in 1878 accepted the Presidency of the University of Alabama. Broken in health, he tendered his resignation in February, 1879, but the Board of Trustees declined to consider the change. In September of the same year, reluctantly, he was forced to relinquish his post and was elected Librarian immediately, in which capacity he and his wife, Amelia Ross Gayle, daughter of Governor John Gayle, served until his retirement in 1882, she succeeding her husband and serving as Librarian until 1906.

Many outstanding historical figures claim distinction from one ancestor alone; not so William Crawford Gorgas. At that period, when women were rarely concerned with intellectual pursuits, Amelia Ross Gayle graduated from the Columbia Female Institute in Tennessee in 1841. As a daughter of the Governor of Alabama, she was privileged to meet the brilliant figures of the period, both in her own home and at the Nation's Capitol. At the expiration of her father's term of office, the Gayle family settled in Mobile. Destiny, apparently shaping her life, forced her at the outbreak of a yellow fever epidemic, to seek refuge at nearby Toulminville, where she met Josiah Gorgas.

Throughout the University she was known as the "Angel of the Campus." As a reminder of the great influence of this gentle woman and her distinguished husband, succeeding generations have here the Gorgas House, Gorgas Hall and a growing symbol of the peaceful efficacy of knowledge, the Gorgas Oak.

It is not uncommon that a son yearns to follow in the footsteps of his father, and William Crawford was not an exception to this rule. However, this father had a different career planned for his son. Little did he suspect, when educating him for the medical profession, that William Crawford, immediately upon his graduation and the completion of his internship at Bellevue Hospital in 1879, would be appointed a

\*Address delivered before the Gorgas Medical Society, University of Alabama, Tuscaloosa, October 3, 1936, in honor of the birthday of General Gorgas.



First Lieutenant in the United States Army.

Our boys will love the barefoot Willie Gorgas, in Baltimore, with heavy family responsibilities and empty pockets. At this period of development, apparently, he desired above all things in the world to be a soldier. He loved fighting, even when he got "licked." As a student at Sewanee, he was a disappointment to his father for lack of application to his studies, until, at the instigation of his mother, he renewed his efforts. His attempts to obtain an appointment for West Point were unsuccessful. His disappointment at the failure was tragic, but he would not be swerved from his purpose. He merely found another way to reach his goal. By studying medicine for four years, he gained his desired objective, the Army, through the medical service, which at the time, seemed to be an insignificant compromise. But for him, as it has been for others, the study of medicine lighted an inextinguishable torch in his soul. His fighting instinct was diverted into a war on physical suffering, disease and death. For twenty years he served in obscure army posts, attending sick soldiers and people of the countryside; always he preferred to be called simply—"Dr. Gorgas."

Rarely does opportunity come to one so early in life for serving one's fellow man—at 26. In 1892, this young medical officer was ordered to Fort Brown, Texas, adjacent town to Brownsville, where an epidemic of yellow fever was raging. Like a good soldier he went courageously, although he had never had the disease.

Queerly enough military glamour had now ceased to attract him. We see him at the Brownsville epidemic disobeying orders which were issued for his protection. He promptly contracted the disease but lived to make good use of the immunity thus gained; nor did he waste time during convalescence. The young lady next door, also convalescing from the "yellow jack," helped to shorten the enforced idle hours, and he was able to persuade her subsequently to become his wife. One wonders whether it might not have been more than mere coincidence that yellow fever, which ripened the romance of his own parents, twenty-nine years later directed the man, whom we are honoring tonight, to Fort Brown and

the young girl, suffering from the same deadly scourge, who was to share his life's work.

On June 16, 1885 Gorgas was promoted to the grade of Captain and Assistant Surgeon, and an opportunity to further the pursuit of the study of yellow fever came with his transfer to Fort Barrancas, Florida, where he served until the outbreak of the Spanish-American War in 1898, when he became a Major and Brigade Surgeon.

General Gorgas went to Siboney in Cuba, where he established and was in command of the yellow fever hospital. Invalided home, because of a malarial infection, he returned to Cuba where he became Health Officer of Havana.

Gorgas served as a link between scientific discovery, and its application for the amelioration of suffering in human life. For so long as history bears record, mankind has been visited periodically by terrible plagues and scourges, bringing terror and death to great numbers of people. Yellow fever, malaria and dengue are only a few of the horrible pestilential diseases, which, but for the work of a few visionary valiant spirits like Gorgas, could lay waste all corners of this fair earth more surely than war. Within the past fifty years, science has discovered the causes of many of these scourges and pointed the way to their prevention and elimination.

Following the close of the Spanish-American War, our Government, confronted with the health problems of Cuba, appointed a Board of Inquiry to determine the cause of yellow fever. For more than a century this disease had been present in Havana, although it seldom reached epidemic stage among the natives. It was among the new comers to the land that the disease flamed up like fire in tinder. Foreign armies proved particularly vulnerable; our own forces suffered heavily and the plans of our Government for the protection and development of Cuba were threatened with defeat. The Board of Inquiry, headed by the now immortal Reed, of the United States Army, went to Havana at the time when Gorgas was serving as the Chief Sanitary Officer. Within a year after its establishment, the Reed Board solved the century-old problem. Its experiments proved that the only means of yellow fever transmission is the *stegomyia* mosquito, a

house-bred pest; but between this discovery and its practical application there appeared a wide river of doubt and disbelief. It was this intangible obstruction which Gorgas bridged in Havana, by his enthusiastic belief in the findings of the Reed Board, and his tact won the consent of the Cuban people to follow his instructions for stamping out yellow fever, in the interest of strangers, although they themselves were immune. With determined perseverance he perfected his plan of attack on the mosquito and carried this warfare into every home by means of personal contacts, which made allies of every householder. In his administrative practices as Sanitary Officer of Havana, Gorgas reduced preventive measures to a fine art. Science and art are at their best when they join hands, and the man who serves as a link between discovery and its application must utilise a combination of qualities rarer than those which characterise the scientific investigator. Thus it was that Gorgas opened a way for sanitary science and for the practical application of that science to meet as at a crossroads. His achievements are too numerous to relate in detail here. Suffice it to say that it was he who drove yellow fever out of Havana by stopping the breeding of *stegomyia* mosquitoes, as "house pets," in the homes. The last case was reported September 28, 1901—35 years ago.

Malaria, also, took a large toll from those living in certain sections of Havana. So hand in hand with the elimination of yellow fever from Havana went the reduction in incidence of malaria. The work of Gorgas at Havana was so notable that Congress showed the appreciation of the whole country, when, on March 9, 1903, an Act was passed promoting him to rank of Assistant Surgeon General. Having completed his work in Havana, he was assigned to duty as Chief Surgeon in the Department of the East, stationed at Governor's Island, and remained there until he was appointed Chief Sanitary Officer of the Panama Canal by President "Teddy" Roosevelt, March 1, 1904. Here was a task worthy of the man and a man equal to the task. He made possible the construction of the Panama Canal by patiently iterating and reiterating to tradition-bound officialdom the relative unimportance of bad smells as compared with a little clear water in a receptacle

about a human habitation. It was he, who, with a handful of trained men, had the courage to tackle this, the greatest piece of sanitary engineering ever undertaken. His efforts brought results more far-reaching than the essential outcome of the scientific discoveries upon which his success was built; for, lacking the administrative genius which created a system of operation for their practical application, these discoveries would have saved no lives and would perhaps have added to the mental anguish of a losing fight against pestilence. Furthermore, without some means of safeguarding against the ravages of yellow fever and malaria, the health and lives of workmen, the great interoceanic waterway connecting the two great Fathers of Waters could not have been built. America would have failed as Europe had failed.

It was Gorgas, also, who improved the sanitary conditions in South African mines. In his Report and Recommendations to the Transvaal Chamber of Mines his own experiences dictated the qualifications essential to efficient health administrators. He aptly defined the character qualifications which are necessary to official health administrators:

"The success of any system of sanitation, which is more or less new to any locality, will depend a great deal upon the choice of the man who has charge of carrying it into execution. If he believes in it, has tact, is enthusiastic and persevering, it will succeed. If he is discouraged by difficulties and opposition, he will fail, even if his system is correct."

Gorgas seemed to be summarising in this recommendation his own admirable qualities of workmanship. Although not a scientist in the accepted term, his achievements honor its implication. His peculiar genius was displayed in an uncanny ability to select the right man for a specific task; in transmitting his own gifts of determination and pertinacity and recreating in his colleagues and subordinates a sense of loyalty and devotion which are primary requisites for outstanding accomplishments. This axiomatic statement of Gorgas in his recommendations has been accepted and taught wherever public health administrators are selected and trained for their duties. For the past twenty years, it has served as the measuring stick by which the



health officers of Alabama are rated.

It was Gorgas, who, as Surgeon General of the United States Army, was held responsible for the welfare and health of our soldiers during the World War. Under him the Army Medical Corps was increased so rapidly that at the close of hostilities the service outnumbered our entire standing army prior to 1917. It goes without saying that his struggles with officialdom were not always successful. Conditions arose which occasioned criticism; this he met frankly, patiently and honestly.

It was Gorgas who plead for adequate air space in barracks where our soldiers were encamped, as a preventive measure against pneumonia and other respiratory diseases. He even urged that every other man be directed to sleep in reverse position; heads alternating with feet. But here, too, he found traditional customs too difficult to uproot. The soldier's native distaste for the proximity of feet rendered ineffective this practical preventive measure. The same fate met his suggestions to avoid close contact with sneezing noses and coughing mouths in the encampments. These were ordinary human discomforts to be endured. Had these orders been more strictly obeyed the deaths from influenza and pneumonia would not have exacted its tragic toll from our brave forces during the World War.

In panorama, then, we have seen Gorgas superintending the cleansing of Havana, hoping to prevent an epidemic; we see him frankly baffled by the epidemic which ensued, doubting the findings of the Reed Board, but instituting measures against the mosquito as an experiment with results so convincing that he became the most extravagant enthusiast for mosquito control work. We see him in Panama, always patient when confronted with unbelief in his methods; always optimistic, though occasionally caustic, as when he replied to the complaint of a Commissioner about the cost of killing mosquitoes at ten dollars a piece: "Yes, but one of those ten dollar mosquitoes might bite you and what a loss that would be to the country." His optimism glowed brightest when he led Dr. S. T. Darling, physician in charge of the Colon Hospital, to see one of the latest cases of "yellow jack" to appear. "Look at him

good, Darling, look at him good! You'll never see another."

Men in authority are seldom overpraised by their subordinates, but you may hear from those who helped to reclaim the Panama jungles a reiteration of one significant phrase: "Gorgas was *square*."

I would leave with you a motion picture of Colonel Gorgas, when he took a canoe trip through the canal with Colonel Mason and the Chief Sanitary Officer, Mr. J. A. LePrince; the first craft and the first men to make the ocean to ocean trip. See them lifting the canoe up the steep sides of Gailard cut. It takes plenty of push. They re-embark at Diversion Channel, dripping with sweat but enjoying it immensely. Now, they reach some deep pools, taking a dip to refresh themselves. Now they are in the craft and away again, Gorgas handling the rear paddle and LePrince the forward one. The river was up and the current was very rapid. Some men high on the embankment try to wave them down and motioned for them to turn back. A heavy explosion breaks the sound of the still tropics, pieces of dirt and dislodged rock are flying all around them. Very quietly the voice of Gorgas is heard: "A little more steam forward," and Mr. LePrince obeys. They arrived at last at their destination, the Atlantic Ocean, aching and tired but with hearts full of joy. Two years later a large concourse of people was watching the first boat pass through the canal and were solemnly impressed. The stupendous feat and all it stood for was being celebrated with rapt attention. But there are three men among the onlookers who have their tongues in their cheeks. They had anticipated that ceremony previously in their own time and their own way.

While in South Africa, at the invitation of Mr. Samuel Evans, Chairman of the Chamber of Mines, Johannesburg, Transvaal, Gorgas accepted an invitation from the Governor. When Gorgas entered the drawing room, the Governor advanced and said, "I am glad to see you General Gorgas." After greeting the Governor, he protested, "You are mistaken, I am a Colonel." The Governor said, "It is you who are mistaken. You were made a General yesterday." Thus in far away Africa he first learned that he had been appointed Surgeon General of the United States Army on

January 16, 1914, which post he held until October 3, 1918, when he reached the age of retirement.

When Gorgas was retired from the Army Medical Service, he accepted a commission with the International Health Board of the Rockefeller Foundation to seek out the last hiding places of yellow fever in South America, and on the West Coast of Africa, in an effort to drive this disease completely from the face of the earth. His imagination was fired by the obvious possibility of this undertaking. He started out, accompanied by his wife and a few trusted lieutenants; but on July 4, 1920 in London, England, he was overtaken by death before this task was finished.

Notwithstanding the abrupt termination of his brilliant career, it may be truly said of Gorgas that his efforts have brought to the plague ridden spots of earth ameliorated conditions of human life, which warrant for the temporary sojourner or traveler expectancy of life and hope of health in place of the foreboding and despair at the beginning of the present century.

When conferring the degree of Doctor of Science upon Gorgas, the Vice-Chancellor of Oxford University said, "He is the modern Machaon of the American Army."

His death did not mark the end of the honors heaped upon this distinguished soldier-doctor, whose work has been an inspiration to all who follow his steps in public welfare. Dr. Belisario Porras, President of the Republic of Panama, an intimate friend of Gorgas, initiated a movement for a unique memorial to symbolise the life-work of the great world physician. This was to be nothing less than the organisation in Panama of the Gorgas Memorial Institute of Tropical and Preventive Medicine. Its first aim was to establish scientific laboratories wherein specialists from all over the world could study, penetrating the tropics themselves for experimentation, when necessary. The Republic of Panama made the memorial possible by donating a site outside the City of Panama, in the region of Bella Vista. Through President Porras, the Republic, in gratitude to Gorgas, built the laboratories at an estimated cost of between five and seven hundred thousand dollars. However, it was not until our own Congress, January 20, 1928, authorised an annual permanent appropriation of \$50,000

for its maintenance and operation that this brilliant plan was perfected. Each Latin-American country was invited to contribute annually, according to a population ratio, a share in the maintenance of the institution. Thus conceived in the faith that the work to which Gorgas devoted his life, not for a day, but for all time, the Gorgas Memorial Institute of Tropical and Preventive Medicine accepted a sacred trust, the task of following the trail which Gorgas blazed; its motto being "Health to all people, in all lands."

While the plans for the Panama Memorial were taking shape in 1922, members of the Medical Association of the State of Alabama inaugurated a movement for the erection of a bronze bust of the great liberator. This bust, which was executed by Mr. Bryant Baker, a New York sculptor, has reposed ever since in a rather obscure corner of the building of the State Health Department. However, Dr. C. A. Thigpen, in his Presidential Message to the Association last April recommended that this bust be removed to the corridors of the State Capitol where all visitors might view and enjoy it. With this suggestion Governor Graves was not only delighted, but instructed that it be placed in a commanding position in the center of the rotunda of the Capitol. Plans are now under way for the completion of a suitable pedestal which will bear the following inscription:

WILLIAM CRAWFORD GORGAS, M. D.

"A Servant of Mankind and a Benefactor to  
Humanity"

Born in Mobile, Alabama, October 3, 1854

Died in London, England, July 4, 1920

Surgeon General of the  
United States Army 1914-1918

His vision and his initiative translated the known scientific facts of yellow fever into practical accomplishment, thereby making possible the control of this scourge of the tropics and the building of the Panama Canal.

To young people all over this troubled world this man sends a message vital in its content. While Gorgas is remembered for his fight in the cause of health, his work as a soldier in pursuit of life and peace cannot be overlooked.

America succeeded in building the great canal in alien territory, not by wielding the



sword over weaker nations, nor conscripting enforced labor, living in miserable conditions, from the ranks of political dissenters. The task was completed under peaceful supervision by the patience, courage, vision and ability of a man who understood and loved his fellow men.

In his life we see the noblest aims of mankind for the betterment of the race rather than the basest instincts, in rampage, for the enrichment and power of the few.

American commerce and trade have been developed in the canal without the fanfare and bonfires associated with national achievement in European dictatorships. This unique monument to democracy is a challenge to foreign ideas and alienisms. It is an example of what courageous men can do in a nation of free men. It is an answer to the anger and impatience of the mob spirit whipped to frenzy by hate and vengeance. Instead of destruction and death, Gorgas and the canal offer an inspiration to life for the peace, happiness, and progress of mankind.

In writing of Gorgas in 1921, General Robert E. Noble paid him this tribute: "A few men are for their works blessed by their contemporaries; others are remembered by posterity. Seldom does that man live whose works are blessed by his contemporaries and whose memory will be held in reverence by future generations. General Gorgas was such a man. A great man has gone; there is no one upon whom his mantle can fall."

Again, in the interest of the young people, I would hold this personality up as a hero, a genius and a world benefactor, but above all the great stature of man, and I say to the youth of today and of all days to come—LOOK AT HIM GOOD!

---

---

**Gastric Surgery**—In gastric surgery, as in most branches of surgery, the choice of the simplest operation, whenever possible, usually gives the most satisfactory results. When operation is indicated in treatment of peptic ulcer, especially when there is pyloric obstruction, gastro-enterostomy, properly performed, offers the greatest probability of success, with the least mortality hazard. The short-loop or no-loop posterior method, with a large stoma directly under the esophageal opening, gives the best functional results.—*Flynn, Texas State J. Med., Nov. '36.*

## ECZEMA FROM THE PEDIATRICIAN'S STANDPOINT\*

By  
JOHN SIGNORELLI, M. D.  
New Orleans, La.

Eczema today occupies a position in medicine peculiar unto itself. Though attempts to clearly categorize it from the usual medical points of study date back many years, this clinical entity remains as confusing as ever. The literature on the subject is so voluminous, and the points of view of attack and deduction in each discussion are so lacking in uniformity of opinion, that the student finds himself in the midst of as much uncertainty today as in the pre-allergic days. Eczema has attracted the investigative efforts of medical men in every field of medicine. The internist, gastro-enterologist, dermatologist and, more recently, the allergist have each assumed that to him belongs the responsibility of categorizing this clinical entity and simplifying its understanding and management. From the standpoint of the pediatricist, the writer is constantly reminded that in his student days this clinical entity was introduced to his class under the name of "reflex eczema" and was described as representing a local manifestation of an irritative process relatively far removed from its site. This was usually sought in the intestinal tract as a mechanical or toxic irritation due to food indigestion, decomposition, and absorption of by-products; or it was attributed to the irritating influence of a phimosis or paraphimosis, and the subject was dismissed without further concern. As time passed on and additional explanations were advanced, each presentation of the subject served to increase rather than diminish his difficulties to catalogue the condition in his mind or notebook. As a matter of fact, although certain progress has been achieved, that original explanation today is entitled, perhaps, to as much consideration as any of the more recent ones, for these, too, fail to explain the true etiology of the condition. The recorded observations and expressions of several ob-

\*Read before the Alabama Pediatric Society, in annual session, Montgomery, April 20, 1936.

\*From the Department of Pediatrics, Louisiana State University Medical Center and the Pediatric Service, Louisiana State Charity Hospital, New Orleans.

servers, notably Hill,<sup>1</sup> Faber and Roberts,<sup>2</sup> Peck and Salomon,<sup>3</sup> McQuarrie<sup>4</sup> and many others, appear to coincide in the conclusion that no one etiologic factor can be considered the cause of true eczema.

The experience and impressions of the writer have long since caused him to share the opinion of those who consider eczema a special pediatric problem. This view is in accord with perfect logic by reason of the fact that eczema as such has its inception during early life (mostly during infancy), and is in reality a part of the dietetic and general management of the infant. It follows, therefore, that more extensive, precise and sustained observations should be made with least difficulty and more practical interpretations, by those who devote their entire time and efforts to the care of infants and young children by virtue of the large numbers of these patients they are called upon to see. In practical everyday work it has been the writer's experience that neither the dermatologist nor allergist is able to cope with the successful management of a case of true eczema without the cooperation of the pediatricist. This is due to the fact that whether or not food allergic reactions are solely and primarily responsible for the occurrence of the eczema they become of prime importance during the course of the disease, and its successful management becomes quite impractical without intelligent manipulation of the patient's feeding.

The solution of a medical problem can be termed complete only if its management has been so developed as to lead to a cure. Ordinarily, the development of rational therapeutic measures against any clinical entity depends upon a clear visualization of the etiologic and pathologic pictures presented. In the case of eczema, however, it must be evident to every one that in the light of our present knowledge its etiology is not clearly understood and cannot, therefore, be properly catalogued. Each of the various theories, from the oldest and perhaps most favored idea of a digestive disturbance basis to the more recent allergic

theory, has much in its favor, but no one of them fully satisfies every requirement of proof.

It is obvious that the maze of divergent opinions prevailing is due not so much to the fact that eczema *per se* is difficult of analysis, and therefore of management, as to the uniformity with which several skin conditions that are not true eczemas have been and are being persistently included under this heading.<sup>1, 5</sup> Even the more recent discussions repeat these inclusions or at least point them out as difficulties to a clear cataloguing of the etiologic status of eczema.

The observations and expressions of several workers, notably Adamson,<sup>5</sup> Hill,<sup>1</sup> Peck and Salomon,<sup>3</sup> Pfaundler and Schlossmann,<sup>6</sup> and others, have for some time impressed the writer that more uniform success in the outlining of a rational management of true eczema would follow if all dermatoses and other skin conditions which are not true eczema are strictly differentiated and excluded, thereby permitting the adoption of therapeutic measures indicated by the anatomic and pathologic picture of the lesion of true eczema itself. It is pertinent to recall that the conditions more frequently confused with eczema, and which have served only to make impossible the task of successful therapy, are (1) seborrheic dermatitis, (2) intertrigo, (3) lichen urticatus, and, in later childhood, seborrheic dermatitis of Unna.

The management of true eczema becomes easier to work out if one has a fairly clear notion of the nature of its lesions and of the probable cause and mode of its development. Therefore, though it may appear superfluous at this time to give a description of the lesions of true eczema, it will be valuable, not only for the purpose of differentiation from other dermatoses but more particularly to set a background for our discussion of eczema from our standpoint.

We are all familiar with the slight redness and roughness of the skin over the cheeks and forehead of certain infants, which presents the appearance of being dry. Close inspection, however, with the aid of a hand magnifying glass, reveals a

1. Hill, L. W.: J. Pediat. 6:405, March '35.

2. Faber, H. K., and Roberts, D. B.: J. Pediat. 6:490, April '35.

3. Peck, S. M., and Salomon, G.: Am. J. Dis. Child. 46: 1308, December '33.

4. McQuarrie, I.: J. Pediat. 6:405, March '35.

5. Adamson, H. G.: Diseases of Children, 2nd Ed., Garrod, Batten, Tzursfield and Paterson.

6. The Diseases of Children, 2nd and 4th Ed., Pfaundler and Schlossmann.



skin surface which is definitely moist. The epidermis is finely fissured in irregular directions; clear serum oozes through these fissures and as it accumulates and becomes dried at irregular sites forms irregular masses. In adjacent areas will be seen minute vesicles with a red, swollen or edematous base, which, as a result of scratching, yield raw weeping surfaces. As these dry the typical crusts so characteristic of eczema, as seen in well developed cases, result. One is not apt to miss the identity of true eczema if one keeps in mind the classic mask-like distribution involving the forehead, cheeks, side of face and chin—with areas about the orbits, nose, and mouth entirely free of lesions.<sup>5</sup>

In older children the eruption does not especially attack the face and may be in patches over the limbs and trunk; but the skin at the site of the lesion can be shown to be edematous by merely pinching. It is generally found on investigation that such children have had eczema at irregular intervals and at various seasons of the year since early infancy. Another distinctive feature of true eczema is the sharp, circumscribed nature of the areas with definite lines of demarcation, although the sizes and shapes vary not only in different cases but from time to time in the same case. Of course, as time passes, several lesions become confluent and involve large areas, in some cases spreading from the original site (usually the forehead or face) to involve almost the entire body. In older children particularly, and occasionally in the young infant, there is another type of lesion belonging to the classification of true eczema; that is, the fissure-like lesions found over the flexor area of the elbows, behind the knees, and behind the ears.

The production of the different phases of the lesion of true eczema is not difficult to understand if one bears in mind that the skin of the infant is possessed of certain characteristics;<sup>6</sup> namely, peculiar tenderness, abundant gland secretions, and a disproportionately thin epithelium; we are dealing also with a low power of resistance of the stratum corneum, which, in itself, is more sensitive than in the adult and permits free oozing of serum. In the presence of irritative influences, this leads to the production of vesicular or urticarial lesions. A factor which particularly leads to

the development of peculiar skin lesions in infants is the preponderance of the sebaceous glands in relation to the sweat glands (in direct opposition to the adult), resulting in a strong oily secretion which manifests itself as an accumulation of seborrheic nature, and often is confused with eczema.<sup>6</sup>

The next consideration is the matter of the constant liability of the skin of the infant to certain irritating influences. Accepting the view that infant skins may be sensitive to external irritants, as well as to internal ones, it becomes apparent that the initial lesion may be due to mere temperature changes, wind, dust, efforts at cleansing the skin, which rob it of its fat protection and makes it dry and easily injured, and the use of certain soaps. Micro-organisms should not be considered here because they gain entrance only after the initial lesion has been produced and represent strictly a secondary infectious condition; internal irritants are represented by both secretions and excretions, such as the saliva which may cause irritation of the skin of the lower part of the face with production of lesions; urine or feces, which may cause lesions of the intertrigo type; and resorptive toxic substances from the intestinal tract which may reach the skin through the circulation. In extremely rare cases micro-organisms may reach the original eczematous lesions through the blood stream and set up a secondary infectious condition. It must be admitted, too, that malnutrition through undernourishment of the general body produces a lowering of the resistance of the skin, thereby rendering it more vulnerable to any of the influences above mentioned as productive of eczematous lesions. Contrarily, overnourishment, especially in young infants, may be directly and solely responsible for the production of true eczema, since the excessive subcutaneous fat cushion interferes with the circulation of the skin and produces a typical lesion of eczema, referred to by many authors as "milk eczema."

There can be no doubt that heredity also plays a part in the etiology of eczema; however, just what contribution heredity makes or the *modus operandi* of its contribution has certainly never been clearly expounded by any student of this subject. It is true that we have been giving much thought to

the so-called diatheses and more recently to allergy, but no definite concise evaluation of the role played by either of these phenomena has ever been given, as brought out by Hill<sup>1</sup> and McQuarrie<sup>4</sup> in the round table conference on infantile eczema at the fourth annual meeting of the American Academy of Pediatrics, June 11-12, 1934, and published in the *Journal of Pediatrics*, March 1935.

Without going into a detailed discussion of the role of food reactions as a cause of eczema, it is only necessary to recall those cases which give a positive skin test to various food proteins. Though the infant's diet contains none of these substances, he shows sparkling improvement or even clinical cure upon the mere withdrawal of his food. All of this emphasizes the fact that we are not yet in possession of sufficient knowledge concerning this phase of the etiology of eczema to permit a conclusive stand.

Combining the high points of the non-descript maze of divergent expressions and opinions contained in the literature with his own experiences, the writer has been led to explain the etiology of true eczema by considering the following as outstanding facts:

(1) That the etiology of true eczema represents a complex or multiple basis, being directly influenced by inherent characteristic tissue behavior for which one may accept the terms idiosyncrasy, diathesis, or allergy, but which will not operate as long as the diet is such as to avoid the production of products which are categorized as internal irritants.

(2) That the sensitiveness of the skin of the infant makes it vulnerable to both internal as well as to external irritants.

With these two points as a basis, we approach the management of cases of eczema along the following lines of thought:

(1) That in the clinical management of true eczema the first consideration should be the protection of the skin through maintenance of the highest possible resistance by means of proper dietetic management from birth, and throughout all seasons of the year. This should be on the basis of avoiding undernourishment on the one hand and overweight, as contra-distinguished from above weight, on the other.

(2) That the prime consideration in the management of an actual case should be the removal of external and, more especially, internal irritants which are the more frequent and more active offenders against the skin of infants. This is, of course, a dual proposition having to do with the hygienic care of the skin against external irritants as well as with freeing the system of internal irritants. Since the latter have to do directly with food and metabolism their removal depends entirely upon dietetic management and is a direct responsibility of the pediatricist. A discussion of the methods of accomplishing this is a detail not intended as part of this presentation. It may be emphasized, however, that proteins are not the sole offenders in this connection.

In connection with the above mentioned points the writer has been impressed that eczema does not appear in those infants whose nutritional status is such as to provide not only average body weight but also those peculiar healthy characteristics of sturdiness, muscular tone and clearness of skin color which are the reflection of perfect physical fitness. This led him to feel that in the presence of a completely well-balanced diet, providing adequate nutritional values, the skin's resistance to internal irritants will be sufficiently adequate to avoid eczematous lesions. McQuarrie's<sup>4</sup> recent reference to the work and experiences of von Groer, of Vienna, in connection with the effect of fat-free diets, and especially those of Hansen<sup>7</sup> with the feeding of linseed oil to certain eczematous children, together with his experimental animal work, serve to emphasize in the writer's mind the role of inadequately balanced diets in the etiology of the eczema.

A review of the writer's records in the matter of management in cases of true eczema, independently or in collaboration with the dermatologist, constantly indicates that the most important factor in the success of a case is the matter of dietetic management and he feels convinced also that this factor is a potent one in the prevention of eczematous lesions. Unless there is a suitable diet, we have found that cases of eczema submitted to any of the various pro-

7. Hansen, A. E.: *Pros. Soc. Exper. Biol. & Med.* 30: 1198, 1933.



cedures (local applications, ultraviolet ray or x-ray irradiation, administration of thyroid extract, etc.) will either fail to respond or at best show only temporary improvement. In the case of linseed oil administration it may be considered that one contributes directly towards balancing of the dietetic requirement, for in our own hands the same beneficial results have occurred with the use of olive oil, and McQuarrie<sup>1</sup> reports similar experiences with the use of corn oil. We have used olive oil in amounts ranging from two drachms to half an ounce daily, according to weight and stool characteristics, and have had more uniformly good results than by any other method of management so far tried by us. In the light of this, and of the experiences of others with other oils of this category, it appears reasonable that we must depart from the idea that proteins are primarily, if not solely, concerned in the production of true eczema. In fact, our impression is very strong that the matter of fat metabolism is a greater factor than even that of protein, while the mineral content of the diet is undoubtedly also of direct importance.

In presenting this overdiscussed clinical entity, the writer is aware of the vastness of the subject as well as the impracticability of adequately covering all points in such detail as to satisfy every debate.

However, it is his hope that the presentation may interest pediatricists in particular to give consideration to this line of thought in their problems of management of cases of true eczema, and if the only results of his efforts will be to stimulate a number of others to discuss and apply the thought in their own work so as to advance it if worthy, or discard it if not worthy, then his efforts will have been flatteringly repaid.

---

**Infections of the Hand**—The use of drains is advisable because the tough tissues of the hand tend to fall together after incision. In order that a drain may not act as a stopper of the opening, it is best to use rubber tissue or rubber tubing. There is no objection to the use of vaseline gauze. All during this stage of treatment moist heat is continued. After a few days it is better to change to dry heat through the agency of a lamp. Bier's hyperemic treatment is not used by us. We were never convinced of its value either in practice or theory.—*Barber, N. Y. State J. Med., Nov. 15, 1936.*

## A NEW ATTACK ON THE TUBERCULOSIS PROBLEM\*

By  
W. PALMER DEARING, M. D.  
Assistant Surgeon  
U. S. Public Health Service  
Montgomery, Ala.

Field studies of tuberculosis have, in recent years, been directed generally toward investigation (1) of the role of contact with the infecting organism within and without the family in producing tuberculous disease, (2) of studies of incidence of infection in various population groups by means of the tuberculin test and (3) of evaluation of the efficacy of and improvements in our techniques of case finding.

That tuberculosis goes hand in hand with poverty and its attendant poor housing, clothing, diet and other accompaniments has been accepted as an established fact; these and the contact factor in the environment, together with hereditary and racial susceptibility factors in the individual, have been thought to determine the tuberculosis death rate of a community. The various control measures carried out by health administrators are based on the hypothesis that these are the causative factors.

The remarkable and persistent decline in the death rate from tuberculosis in the United States, however, has not been satisfactorily explained on these bases. Particularly disconcerting is the fact that during the decade 1920 to 1929, the tuberculosis death rate per 100,000 decreased 38% in Louisiana, which expended practically nothing in study and control, and only 29% in Maryland, which expended considerable sums in tuberculosis study and control.<sup>1</sup>

Another most striking fact at variance with the above hypotheses regarding the determinants of the tuberculosis death rate is the regional distribution of deaths from the disease. The high death rates among Negroes and Indians, presumably a mani-

---

\*It is a matter of record that there is great discrepancy in the incidence of tuberculosis in the several counties of Alabama. The study herein referred to and designed to determine the reason was evolved and undertaken by the United States Public Health Service after the problem had been carefully looked into by the State Department of Health and the Service.

1. Lumsden, L. L.: A Survey of Tuberculosis in Louisiana, Public Health Bulletin 219, April 1935.

festation of racial susceptibility, are recognized. Calculations of the total death rate from tuberculosis by states naturally show the Southern States to have a rather high rate because of the large number of Negroes. When, however, white and colored rates are studied separately, North and South Carolina, Georgia, and the Gulf States are seen to have a low rate for both whites and Negroes as compared with these racial groups for the rest of the country. On the other hand, the adjoining states of Kentucky and Tennessee are seen to have very high rates for white and relatively high rates for colored population. The white death rate from tuberculosis in Kentucky and Tennessee is exceeded only by that in the three resort states of Colorado, Arizona, and New Mexico.<sup>2</sup>

This high rate extends, to some extent, on up into Virginia and Maryland; north of this area, the rates are generally lower. If we approach the Tennessee Valley area from any direction, however, the death rate rises.

When the distribution of tuberculosis mortality is studied by counties in the Southern States (the only states which separate whites and Negroes in the county figures), contrasts become even more striking. Alabama presents the most clear cut picture. The State may conveniently be divided into three zones: Southern zone of Choctaw, Marengo, Wilcox, Lowndes, Crenshaw, Pike, Bullock and Barbour Counties and all south of them; central zone of Lamar, Fayette, Tuscaloosa, Jefferson, St. Clair, Talladega, Clay, and Randolph Counties and all between them and the southern zone; and the northern zone of the remaining counties.

Grouped in this way, the average annual rates per 100,000 for the five years, 1929 to 1933, were 29.6 for the southern zone, 42.6 for the central zone, and 62.2 for the northern zone. Moreover, the rate for the border counties in Tennessee adjoining Alabama (Hardin, Wayne, Lawrence, Giles, Lincoln and Franklin) was 81.1—still higher. (See Table.) The Negro rate for the three zones increases from 111.0 in the southern zone to 162.6 in the central

zone, 175.1 in the northern zone and 197.6 in the adjoining Tennessee Counties.

DEATH RATES\* FROM TUBERCULOSIS IN THREE ZONES† OF ALABAMA AND AN ADJACENT AREA IN TENNESSEE

|                    | Population | Deaths<br>(Average<br>Annual) | Death<br>Rate (Average<br>Annual<br>per 100,000) |
|--------------------|------------|-------------------------------|--|
| <b>Whites:</b>     |            |                               |  |
| South Alabama      | 411,500    | 121.6                         | 29.6   |
| Central Alabama    | 682,600    | 290.6                         | 42.6   |
| North Alabama      | 607,400    | 377.6                         | 62.2   |
| Adjacent Tennessee | 113,700    | 92.2                          | 81.1   |
| Total Alabama      | 1,701,500  | 789.8                         | 46.4   |
| Total Tennessee    | 2,138,600  | 1,808.6                       | 84.6   |
| <b>Colored:</b>    |            |                               |  |
| South Alabama      | 300,000    | 333.0                         | 111.0  |
| Central Alabama    | 542,200    | 881.6                         | 162.6  |
| North Alabama      | 102,700    | 179.8                         | 175.1  |
| Adjacent Tennessee | 16,800     | 33.2                          | 197.6  |
| Total Alabama      | 944,900    | 1,394.4                       | 147.6  |
| Total Tennessee    | 477,600    | 1,062.2                       | 222.3  |

\*Deaths and Death Rates are based on annual averages of figures for the five years, 1929 to 1933, and were compiled from reference 2.

†The zones for Alabama are as follows: Southern Zone—Choctaw, Marengo, Wilcox, Lowndes, Crenshaw, Pike, Bullock and Barbour Counties and all south of them; Central Zone—Lamar, Fayette, Tuscaloosa, Jefferson, St. Clair, Talladega, Clay, and Randolph Counties and all between them and the Southern Zone; Northern Zone—remaining counties.

"Adjacent Tennessee" comprises the following counties: Hardin, Wayne, Lawrence, Giles, Lincoln and Franklin.

This remarkable and consistent increase as we go north from the Gulf toward Tennessee cannot be explained on any existing hypothesis of the causation of tuberculosis disease and death. Economic conditions, housing, diet—all appear better in the Tennessee Valley than in the lower rate areas. Southeastern Alabama, in particular, has light, sandy soil and a considerable proportion of submarginal land under cultivation by very poor people. Its assessed valuation is around half that of the agricultural land in the Tennessee basin. Yet, the rate is lowest of all in that area.

What is the explanation? One must suspect that there are some hitherto undreamed of natural phenomena tending to increase susceptibility in the Tennessee Valley or to decrease susceptibility in South Alabama and similar areas. An experiment of Nature is producing these tremendously different death rates in two areas within a few hundred miles of each other; it remains to discover the methods of operation.

Since these facts were discovered and pointed out by Lumsden and Dauer,<sup>2</sup> plans have been developed by the United States Public Health Service, in cooperation with the State Health Departments of Alabama and Tennessee and with the Medical Section of the Tennessee Valley Authority, for an intensive study of conditions in the two

2. Lumsden, L. L., and Dauer, C. C.: Some Features of Tuberculosis Mortality Distribution in the United States, Public Health Bulletin 225, March 1936.



areas, in order to throw light on the mystery.

The first part of the program is concerned with a complete survey, by means of a house-to-house canvass, of two counties, one in each area, as nearly comparable as to population, racial constitution, occupation, urbanization, etc., as could be found. On the basis of these criteria, Coffee County, Alabama, with a population at the 1930 census of 32,556 (6,894 of whom were Negroes), and Giles County, Tennessee, with a census population of 28,016 (7,563 of whom were Negroes) were selected. The average annual death rate from tuberculosis for whites during the five years, 1929 to 1933, was 13.1 per 100,000 in Coffee County and 120.3 per 100,000 in Giles County. For Negroes, the rates were 54.6 and 208.9, respectively.

After meetings with the local County Medical Societies and County Health Departments, at which the study was explained and discussed, a force of carefully selected and trained public health nurses started work in each county during the latter part of July, with the objective of visiting every home, and obtaining the information necessary to fill out an extensive questionnaire covering census data, living, working and recreational conditions, condition of dwelling and premises, food habits with careful recording of amounts taken, and sanitation. Most important, also, is an inquiry into deaths in the household since 1930, with history of the last illness, indicating whether reported and whether suspicious of tuberculosis or not, and inquiry into all illnesses in the household at the time of interview, likewise with especial regard to tuberculosis.

The field investigators are under the general supervision of Medical Director L. L. Lumsden of the U. S. Public Health Service, who originally conceived the plan of the study, and under the immediate direction of the writer, who has headquarters with the State Board of Health in Montgomery.

The study in the two counties under consideration at present is expected to take about a year. Study of the data obtained from the survey of some 6,000 homes in each county should give a fair picture of the conditions in the two regions which have been thought to be important in determin-

ing tuberculosis mortality. In addition, the data on morbidity and mortality will give some idea as to the tuberculosis situation in the two areas, confirming or invalidating the conclusions described herein drawn from the official reports. It is anticipated, in this connection, that unrecorded deaths will be found. Enough suspicious deaths might even be discovered to double the rate for Coffee County; the reported white rate, however, would have to be multiplied by nine to raise it to the reported rate for Giles County. Tuberculin testing and intensification of diagnostic clinic work among the individuals with suspicious histories in the two areas will accompany the canvass and crystallize the conclusions based on histories.

In addition to this field survey, studies of certain specific environmental factors in the two regions are being undertaken. In order to determine differences in radiant energy to which the population is exposed, daylight recorders which give a continuous record of actual daylight are in operation in each county. Studies of dust, relative humidity and other climatological factors are contemplated. It is also planned to study the inorganic and vitamin chemistry of plants and animals from the two areas.

These specific studies, however, wait upon results of the survey to give them point and indicate the directions in which they should be amplified. The initial survey will likewise be extended along the lines of inquiry that seem promising; other areas must be studied to confirm suggested conclusions, which it is hoped will result from the study as outlined at present.

#### RECAPITULATION

1. Certain environmental and constitutional factors have been accepted as determining the incidence of tuberculous disease and mortality in the population.

2. The regional distribution of tuberculosis deaths in Alabama and Tennessee is not only inconsistent with but contrary to that expected on the basis of these factors.

3. The U. S. Public Health Service, State Health Departments of Alabama and Tennessee, and the Medical Section of the Tennessee Valley Authority are cooperating in a comparative study of the high and low rate areas in an attempt to uncover the controlling processes.

## THE EFFECT OF PREGNANCY ON THE UPPER URINARY TRACT\*

By  
JARRATT P. ROBERTSON, M. D.  
Birmingham, Alabama

Pregnancy produces changes in the upper urinary tract that are as definite and distinct as those occurring in the reproductive organs. The most striking of these is dilatation of the ureters and kidney pelves, usually more marked on the right side. Its occurrence is so consistent that it should be considered a normal accompaniment of pregnancy and not a pathologic process.

Dilatation of the upper urinary tract during pregnancy is safely and easily demonstrated by intravenous pyelography. Prior to its introduction, few complete studies of this portion of the urinary tract during pregnancy had been made. Intravenous urography succeeds best where there is a moderate stasis in the upper portion of the tract and a fair to good excretory function of the kidneys. These conditions are present after the third or fourth month of pregnancy, and excellent pyelograms are usually obtained.

Lee and Mengert, Crabtree and Prather, Cornell and Warfield,<sup>1</sup> Baker and Lewis,<sup>2</sup> and Kretschmer<sup>3</sup> in the United States, Dugald Baird in Scotland and Paul Schumaker in Germany found dilatation of the kidney pelves and ureters of some degree in practically every pregnancy they studied. The dilatation is approximately 100 per cent on the right side. The left side is dilated in 75 to 85 per cent of the cases.

Following delivery, the upper urinary tract rapidly recedes to the normal non-pregnant state, provided pregnancy, delivery and the postpartum period have all been normal. If these periods have been uncom-

plicated, many primiparas will show a normal urinary tract 24 to 48 hours following delivery. In the remaining cases the tract will have returned to the normal non-pregnant state (Fig. 1a and 1b) in from 7 to 14 days. In those cases where delivery is complicated, by cesarean section, high forceps, or where infection develops, the involution of the upper urinary tract will be delayed, and in some instances may increase beyond that which had been present during pregnancy.

The dilatation of the upper urinary tract during pregnancy, its return to normal after delivery, and its tendency to return to the antepartum state when there is interference with normal delivery have stimulated many to seek for the cause of the dilatation.

The different theories advanced may be grouped under the following heads:

- (1) Blockage of the ureters at the pelvic brim by the pregnant uterus.
- (2) Torsion and compression of the pelvic portion of the ureters from changes in the cervix, uterus and broad ligaments.
- (3) Decrease in the lumen of the lower portion of the ureters from hypertrophy and hyperplasia.
- (4) Atony of the ureters and kidney pelves from a hormone, or some cause inherent in and peculiar to the pregnant state.

The majority of these theories are predicated upon ureteral obstruction of some form between the pelvic brim and bladder. Of these theories no one is applicable to all cases. Each advocate is able to prove his theory and disprove all others, but, in the final analysis, the argument often becomes the individual's idea and not a proven fact.

The first theory advanced, and the one that at first thought seems logical, is that the dilatation is due to compression of the ureters at the pelvic brim by the enlarged uterus. The main defense of this theory is that the dilatation usually occurs above the pelvic brim, and is present to a moderate degree with large fibroids and ovarian cysts. There is a lateral displacement of the ureters in the lumbar region in both instances, thought to be due to pressure of the enlarged uterus—apparently a very convincing argument.

\*Read before the Tuscaloosa County Medical Society, Tuscaloosa, April 6, 1936.

\*From the Department of Urology, Hillman Hospital, Birmingham.

- (1) Lee, H. P. and Mengert, W. F.: The Effect of Pregnancy on the Urinary Tract, *J. A. M. A.* 102: 102-106 (Jan. 13) 1934.
- (2) Baker, E. C., and Lewis, J. S.: Comparison of the Urinary Tract in Pregnancy and Pelvic Tumors, *J. A. M. A.* 104: 812-815 (March 9) 1935.
- (3) Kretschmer, H. L., et al: Dilatation of the Kidney Pelves and Ureters During Pregnancy and the Puerperium, *J. A. M. A.* 101: 2025-2029 (Dec. 23) 1933.



Intravenous pyelograms at frequent intervals in the early weeks of pregnancy often show the dilatation to be present in multiparas by the sixth or eighth week of pregnancy, before the uterus has enlarged sufficiently to reach the pelvic brim or cause obstruction by its size or weight.

the ureter from hyperplasia and hypertrophy is disproved with stereo-ureterograms. They fail to show a decrease in the lumen of the ureters; and obstruction is not encountered in the passage of catheters larger than those usually employed.

The hormone theory has many followers,



Figure 1a—Marked dilatation of ureters and kidney pelves (bifurcated ureter left side), at seventh month of pregnancy. Non-infected urinary tract.

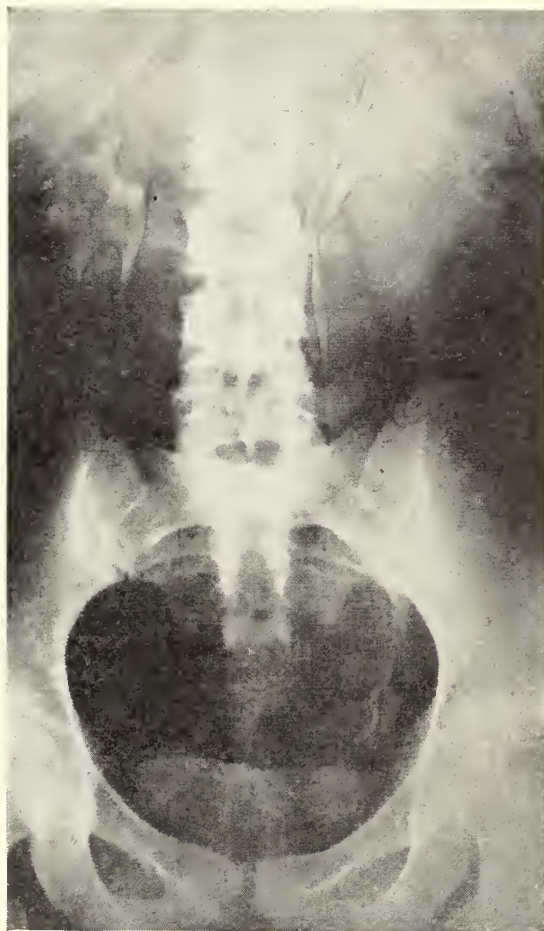


Figure 1b—One week postpartum, dilatation of ureters and kidney pelves has almost disappeared.

(Fig. 2a and 2b.) The right side is always dilated to a greater degree than the left, regardless of the position of the fetus and whether the uterus is rotated to the right or left. The frequency of nephroptosis on the right side and the protection the left ureter receives from the sigmoid may account for this. The proof offered against the dilatation being due to pressure of the enlarged uterus is also convincing.

That the dilatation is due to back pressure from a diminution in the lumen of

and justly so. It has been contended that the entire body undergoes a loss of tone during pregnancy. The uterus, the ureters and kidney pelves are composed of smooth muscle developed embryologically from similar tissue. There is a hormone or substance peculiar to the pregnant state that permits the uterus to enlarge until the end of pregnancy is reached, and then causes it to contract and expel the fetus. This something may produce an atony of the ureters and kidney pelves and permit them to dilate. This theory is substantiated by the work of Hofbaur<sup>1</sup> who found that 0.5 cc. of

pituitary extract, three times a day for two weeks, would produce a contracture of the ureters and kidney pelves and not interrupt pregnancy. Employment of indwelling ureteral catheters for days does not cause a contracture of the atonic ureter. The rapid return of the kidney pelves and ure-

over the pelvic brim. These changes become more marked as pregnancy advances and by the fourth or fifth month the weight and size of the uterus is sufficient to produce ureteral obstruction at the pelvic brim. A substance peculiar to the pregnant state having destroyed the power of

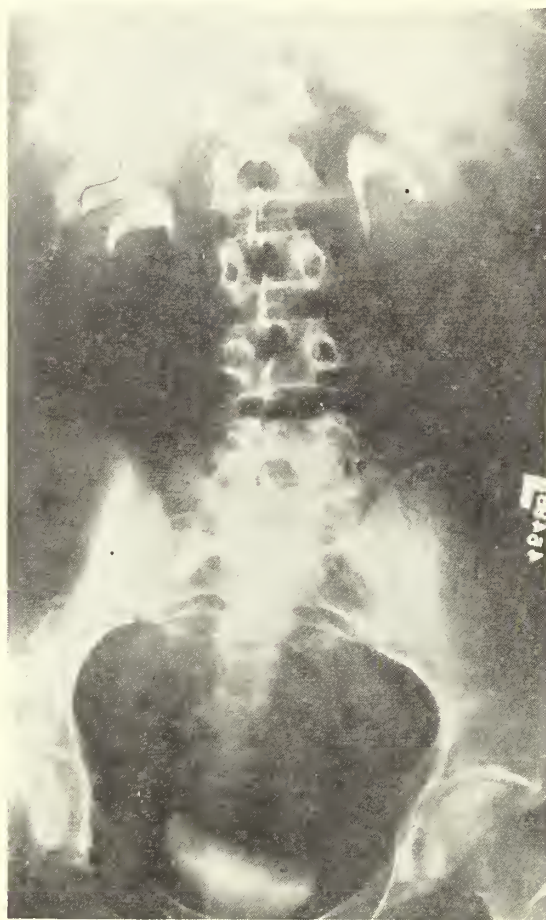


Figure 2a—Slight dilatation of kidney pelves with angulation of right ureter at end of second month of pregnancy.



Figure 2b—Marked dilatation of ureters and kidney pelves at seventh month of pregnancy.

ters to normal following delivery further substantiates the hormone theory.

An attempt should not be made to explain the dilatation on one theory alone, but on a combination of certain portions of these theories. Undoubtedly there is a substance peculiar to the pregnant state that produces an atony of the ureters and kidney pelves. Pregnancy produces changes in the uterus, cervix and broad ligaments. These changes probably compress the ureters in the uretero-vesical region and, in addition, cause obstruction by pulling them

contracture, and produced an atony of the ureters and kidney pelves, obstruction of the mildest type is then followed by marked dilatation.

That the ureter and kidney pelvis can dilate until they contain from 25 to 300 cc. of urine and remain asymptomatic, unless infection intervenes, is interesting. It is probable that the backache of pregnancy may be due, in part, to the dilatation.

The dilatation can be confirmed by retrograde and intravenous pyelography. The former is accompanied by the danger of introducing infection into a non-infected uri-



nary tract. The latter furnishes all the information desired without the danger of interrupting pregnancy or infecting the urinary tract.

Unless infection intervenes treatment is not indicated. If the pregnancy, delivery, and postpartum period have all been free of complications, the ureters and kidney pelvis will have returned to normal in the majority of cases by the fourteenth day. The development of complications during delivery, the infection of residual bladder urine during the postpartum period with a resulting kidney infection by the hematogenous, lymphatic or reflux route, or an acute exacerbation of a chronic pyelitis, results in failure of the upper urinary tract to return to normal, and often accounts for the septic temperature where there is no evidence of puerperal septicemia.

If the dilatation occurs in all pregnancies, is symptomless and treatment is not indicated, then what is gained by its study?

Pyelitis occurs in 10 per cent of all pregnancies, and in its exaggerated form constitutes one of the major complications of pregnancy. DeLee<sup>4</sup> estimates that kidney infection of some degree is present in two-thirds of all women that die during pregnancy. It is responsible for a very high fetal mortality rate.

Pyelitis of pregnancy in its advanced form responds poorly to all forms of medical treatment. This is due to stasis of urine in the dilated urinary tract. The infected residual urine associated with prostatism does not clear up until some form of bladder drainage is established; neither will the advanced pyelitis of pregnancy until ureteral drainage is provided.

Stasis is always an open invitation to infection. This is just as true with urine as with intestinal residues. A moving stream remains pure, while stagnant water quickly becomes foul. The remarkable part is that only 10 per cent of pregnant women develop pyelitis.

The symptoms of upper urinary tract infection are well known and will need but a brief mentioning. Frequency, pain, burning, urgency, nocturia, backache and pyuria are the early symptoms. As the disease advances, fever, chills, tenderness in

the costovertebral angle, headache, loss of weight, anorexia, distension, nausea and vomiting are noted. The diagnosis is confirmed by the finding of blood, pus and bacteria in the urine. It is a waste of time of all concerned to study other than a catheterized specimen of urine in a suspected case of pyelitis.

The infection usually appears about the fourth month of pregnancy. Fifty per cent of the infections occur in primiparas and the right kidney is infected three times as frequently as the left. The predominance of the infection on the right side is due to the frequency of nephroptosis and increased dilatation on this side. The colon bacillus is the chief offender.

A patient entering pregnancy with a chronic symptomless kidney infection is almost sure to have a febrile pyelitis before the termination of pregnancy. Cure during the course of the pregnancy is not to be expected, but with proper treatment improvement is assured. If a patient enters pregnancy with a non-infected urinary tract, and is free of possible foci of infection, such as an abscessed tooth, infected tonsils, sinuses and an infected cervix; is kept free of constipation, and does not contract some acute infectious disease or upper respiratory tract infection, she will, in almost every instance, pass through her pregnancy without developing a pyelitis. In pyelitis of pregnancy an ounce of prevention is worth a pound of cure. The urinary tract should be sterilized and all possible foci of infection removed before the patient becomes pregnant.

The urologist sees pyelitis of pregnancy in its advanced and exaggerated form, which, by its rebellious behavior, has been sifted from a larger group that has responded to medical treatment. It is necessary to keep this sharply in mind, otherwise the urologist may be accused of being overzealous to employ the cystoscope and ureteral catheter.

A large percentage of the cases of pyelitis of pregnancy properly supervised will respond to medical treatment. Complete bed rest should follow the diagnosis. The head of the bed is elevated and the patient turned from side to side at frequent intervals in the hope that the upper urinary tract may be encouraged to empty. The

(4) Geisinger, J. F.: Pyelitis in Pregnancy, South. M. J. 27: 354 (April) 1934.

knee-chest position may also be employed for 30 minutes three or four times a day. In addition, the patient is placed on a bland diet, fluids are forced and intestinal stasis eliminated. Urotropin and ammonium chloride, or acid sodium phosphate, is given in 15 gr. doses every 6 hours. Urotropin

their reproduction or to destroy them. The majority of these infections are due to the colon bacillus group, and they do not flourish in a highly acid urine. Where possible, cultures should be taken to determine the type of infection. The invading organisms are usually not eradicated by the bacterial



Figure 3a—Bilateral kidney infection treated for ten weeks with indwelling ureteral catheters. Normal uncomplicated delivery. Full term baby.



Figure 3b—One week postpartum. Note marked decrease in dilatation of ureters and kidney pelvis as compared to Figure 3a.

must be employed in large doses and in a highly acid urine if beneficial results are to be secured. "The increase in the acidity of the urine is just as important in combating the infection as is the use of urotropin, and is probably of more benefit by itself than the use of the urotropin alone."<sup>5</sup> Here is an ideal place for the employment of urinary antiseptics. The stasis permits the excreted drug to remain in contact with the bacteria sufficiently long to prevent

coefficient of the drug employed, but by making the urine an unhealthy medium for their growth and in this way assisting the patient to develop resistance and immunity against the disease.

If the patient is very toxic, vomiting and dehydrated, and shows evidence of acidosis, the treatment of choice for the first few days is large doses of alkalis by mouth, infusions of glucose, and hypodermoclysis of normal saline, to combat the toxemia, dehydration and acidosis.

In the coccus infections startling results

(5) Robertson, J. P., and Lee, A. B.: Cystoscopy and Urography, *Ann. Surg.* 101: 1101-1109 (April) 1935.



sometimes follow the use of neosalvarsan in 0.2 to 0.3 gm. doses every 4 or 5 days.

Excellent results have been reported in the treatment of pyelitis of pregnancy by the use of pituitary extract, 0.5 cc. three times a day for two weeks. It causes a contracture of the ureters and kidney pelves, eliminating the stasis of urine and, in this way, aiding the patient in overcoming the infection. It is said not to interrupt pregnancy. We have not been bold enough to employ it.

Theoretically the ketogenic diet should give excellent results in pyelitis of pregnancy where the causative organism is the colon bacillus, provided the patient is in condition to withstand the treatment. It requires the close cooperation of the attending physician, a bacteriologist and a trained dietitian. Ketone bodies in sufficient concentration must be present in the urine coincidental with acidity of the urine of a pH of 5.2 or less if satisfactory results are to be secured. Our results with the ketogenic diet have been disappointing. We have been unable to secure ketosis and lower the pH of the urine to 5.2 or less.

If the temperature remains consistently near 103 degrees and improvement does not follow 48 to 72 hours of expectant treatment, then ureteral catheterization should be employed. Drainage must be established early with retention ureteral catheters, if improvement is to be satisfactory and consistent. Drainage may be kept up in this way for several weeks provided the catheters are changed every four or five days. They should be irrigated with sterile technique every 4 hours. Distilled water is employed for this because it does not precipitate and block the lumen of the catheter.

Autopsy in advanced kidney infections often shows the parenchyma to be studded with multiple small abscesses. Therefore, it is easy to see that the infection is not eradicated by the bacterial coefficient of the drug employed but by establishment of better drainage and the mechanical cleansing of the kidney pelves, in this way assisting nature to overcome the infection. The results from the use of an indwelling ureteral catheter in these acutely ill patients is often dramatic. If the temperature falls rapidly following the insertion of the catheter, then the case is one of pyelitis. If

the temperature continues a septic course, but decreases each day, the case is one of pyelonephritis. The infection is usually bilateral. Therefore, it is advisable to catheterize both ureters. If one kidney proves to be free of infection then the catheter can be removed. The drainage is continued until the temperature is below 100. Following the removal of the catheters, if the temperature again becomes elevated, they are reinserted.

Miscarriage and premature labor are not to be feared if the cystoscopy is done carefully. The early use of indwelling ureteral catheters will carry patients to term that would otherwise abort or have a premature labor from the elevated temperature, sepsis and toxemia.

With this plan of treatment, consistent and satisfactory results have been secured. We have not been forced to advise therapeutic abortion or induction of labor to save the mother. A few of our cases have aborted and delivered prematurely. The majority have been carried to term. Indwelling ureteral catheters were employed in one case during the last ten weeks of pregnancy. (Fig. 3a and 3b.) She was delivered of a normal full term living baby.

#### CONCLUSIONS

(1) Dilatation of the ureters and kidney pelves is a normal accompaniment of pregnancy.

(2) A substance peculiar to the pregnant state produces atony of the ureters and kidney pelves. Slight obstruction to the outflow of urine is followed by marked dilatation.

(3) The patient entering pregnancy with a chronic kidney infection will usually have a febrile pyelitis before the termination of her pregnancy.

(4) In the exaggerated pyelitis of pregnancy, excellent results follow the use of indwelling ureteral catheters.

NEXT MEETING

BIRMINGHAM

APRIL 20-22, 1937

# THE JOURNAL

OF THE

## Medical Association of the State of Alabama

---

### Editor-in-Chief

FRED W. WILKERSON.....Montgomery

### Associate Editors

M. Y. DABNEY.....Birmingham  
W. D. PARTLOW.....Tuscaloosa  
J. N. BAKER.....Montgomery  
DOUGLAS L. CANNON.....Montgomery

---

Please send in promptly notice of change of address, giving both old and new; always state whether the change is temporary or permanent.

---

### Office of Publication

519 Dexter Avenue.....Montgomery, Ala.

Subscription Price.....\$3.00 Per Year

---

December 1936

---

### CONTINUOUS TREATMENT OF EARLY SYPHILIS

"If early syphilis is properly treated, late syphilis will almost, even if not quite, disappear. That early syphilis is not being properly treated is obvious from the fact that late syphilis is not disappearing." Thus does Moore<sup>1</sup> open his plea for the continuous treatment of early syphilis and he goes on to state that "the proper treatment of early syphilis is of importance from three standpoints: that of the individual patient; that of public health; and that of the public expense. The individual patient requires proper treatment in order to accomplish 'cure' and to prevent the development of usually serious, often crippling and disabling, and sometimes fatal, late lesions."

Moore further asserts that "the economic aspect of the proper treatment of early syphilis is of fundamental importance. Hospital beds, both general and psychiatric, are filled with patients who must be treated and maintained at public expense, who are no longer a menace to the public health since they are no longer infectious, and whose prospect of 'cure' or even of symptomatic relief is, as compared with early

syphilis, negligible . . . It seems logical to conclude that the expenditure of money is being made in the wrong place; and that by increasing greatly the amount spent on the proper care of early syphilis, the ultimate cost of late syphilis could be greatly reduced."

Moore places the blame for ineffective early treatment partly upon the biology of syphilitic infection and partly upon the laity and physicians. He reminds us that some, perhaps many, individuals have acquired syphilis and are totally unaware of it, because the primary and secondary lesions were either trivial or wholly absent. And here the author well says "the physician has only one defense against this biologic silence of syphilitic infection, namely, the use of the routine serologic test for syphilis on every possible occasion. Case finding is as important in syphilis as it is in tuberculosis." He considers ignorance and unwillingness to learn as being the chief fault of the laity and condemns the "conspiracy of silence" concerning syphilis. And his charge against the medical profession is "that it has not taken the lead in education of the laity; that it does not apply modern methods to early diagnosis; and that, though adequate treatment methods have been developed, it does not apply them . . ."

"To concentrate now on the question of treatment, it is readily apparent that the failure of physicians as a group is due in small part to technical ineptitude, and in large part to the persistence of empiricism. There are a few simple principles applicable to the treatment of early syphilis, all of which are backed by sound experimental and clinical evidence. These are: (1) Successful treatment depends on early diagnosis. (2) The choice of drugs is limited to the arsenicals represented in the arsphenamine group, and to bismuth. (3) Treatment should be continuous from start to finish, i. e., without rest periods of any sort. (4) Treatment must be prolonged to a minimum of (depending on the stage of infection) 12 to 18 months. (5) Determination of a 'cure' requires lifelong post-treatment observation." And he adds that "the treated syphilitic patient is the ideal subject for the periodic health examination."

New light is constantly being shed upon

---

1. Moore, Joseph Earle: The Continuous Method of Treatment of Early Syphilis, *Ann. Int. Med.*, 10:30 (July) 1936.



syphilis, always an interesting and frequently a misunderstood disease, and many practitioners have failed to keep abreast of the times. But many others are well informed and willing to do what they can to lessen the inroads of syphilis. Many competent and conscientious physicians treat indigent syphilitics for little or nothing or endeavor to have them report to a free clinic for treatment, often to no avail. Certainly any syphilitic in a town of any size can obtain free treatment if he really desires it.

But in America syphilis continues to be a major problem, though in some states, nota-

bly Massachusetts, it is reported to be decreasing. The various state and city health departments all over the country are carrying on as best they can, despite terribly reduced appropriations. The new Surgeon General has declared war upon syphilis in no uncertain terms and no doubt he and his organization will accomplish much during the next few years. But, unfortunately, the task is a monumental one and it will probably be many years before the ravages of syphilis will begin to be checked in America to the extent that they are now being eliminated in England and in Scandinavia.

---

## DEPARTMENT OF PUBLIC HEALTH

### BUREAU OF ADMINISTRATION

J. N. BAKER, M. D.  
State Health Officer in Charge

#### THE NEXT GREAT PLAGUE TO GO

There is given below a short "three-way" radio broadcast given in New Orleans during the recent annual meeting of the American Public Health Association. This broadcast had a rather extensive "hookup" and was an effort to get over to the public some of the simpler yet more important facts concerning syphilis, with which every one should be familiar. The three participating in this broadcast were Dr. Huntington Williams, Health Commissioner of the City of Baltimore, Dr. George H. Ramsey, Assistant Commissioner of Health of New York State and the State Health Officer of Alabama.

Dr. Baker: Good morning, Doctor Ramsey. This year's health program has such a variety of interesting problems that I find it difficult to schedule my time to the best advantage.

Dr. Ramsey: Quite true, Doctor Baker. And have you noticed a change in emphasis? Such diseases as typhoid fever and smallpox no longer take up as large a share of the program as they formerly did.

Dr. Baker: That is as it should be. With improved sanitation and vaccination, these diseases have been reduced to an encouragingly low level. We must now turn our at-

tention to problems which long have been sidetracked or still remain unsolved.

Dr. Williams (approaching): Good morning, Doctor Baker.

Dr. Baker: Good morning, Doctor Williams.

Dr. Williams: And Doctor Ramsey.

Dr. Ramsey: Good morning, Doctor Williams.

Dr. Williams: I believe that I just heard you speaking of the content of this year's program. It is of great interest to me that an entire session of this Association is being devoted to the consideration of a single disease—syphilis.

Dr. Baker: To attain such unusual distinction, this disease must indeed be a hazard.

Dr. Williams: It is indeed a serious health hazard, ranking with cancer, tuberculosis, and pneumonia as one of the four greatest killing diseases, and is one of the most costly of the major communicable diseases.

Dr. Ramsey: And yet, in spite of its importance, the public knows comparatively little of the seriousness of the infection we are discussing.

Dr. Williams: The situation has been characterized by a well-known physician as a "conspiracy of silence." Our people have shunned not only discussion, but even mention of the name of the disease, regarding it as a misfortune which always affects the family of someone else, never one's own.

Dr. Ramsey: Recently, through newspapers and magazines, this "conspiracy of silence" seems to have been broken down to some extent.

Dr. Williams: These are encouraging signs. With the unusual opportunity afforded by the press and the radio, what do you think we should tell the public, Doctor Ramsey?

Dr. Ramsey: One of the most common questions asked is just how widespread is this disease. This is difficult to determine, but there are startling figures. For example, in 1933, we found, by means of a special survey, that about 20,000 persons were receiving treatment in New York State, exclusive of New York City.

Dr. Baker: Perhaps you will be interested in the results of a recent survey in Alabama, Doctor Ramsey. In one county, a large group of Negroes were examined and nearly one-third of them showed evidence of this infection. For the entire State of Alabama, 4,600 cases were reported in 1935, although many others were undiscovered and unreported, as is the case everywhere else.

Dr. Williams: Such surveys might be conducted in any state with similar results, Doctor Baker. Although the disease is more prevalent among the less informed members of society, it is no respecter of persons. Every person exposed is likely to be infected.

Dr. Baker: To appreciate the seriousness of this problem, the public should know that about 10 per cent of all insanity and 18 per cent of all heart disease are believed to be due to this one disease. Since the early stages may be so mild as to pass unnoticed by the patient, a large percentage of victims are unaware of their misfortune until years later. We are therefore exceedingly fortunate in having available a blood test which will detect the disease even though no outward signs may be present.

Dr. Williams: Every person should have this test, which can be done conveniently at the time of the periodic health examination. This is particularly true of persons contemplating marriage, and is imperative for expectant mothers. An infected mother, if not treated early and thoroughly, stands a great chance of bearing a diseased baby.

Dr. Ramsey: You mentioned some of the late complications, heart disease and

insanity, Doctor Baker, which come, frequently without warning, years after the initial infection. The sad feature of the whole situation is that it is within our power to prevent disasters. If the disease is discovered early and the patient is given the benefit of modern treatment, his chance of cure is excellent, and the risk of late complications is correspondingly small. Treatment in the early stage is valuable for another reason: It not only protects the infected individual, but it renders him incapable of passing the disease on to his family and his friends.

Dr. Williams: That is essentially the basis for control measures. If we use properly the scientific knowledge which we now possess, we shall be able to eradicate syphilis.

Dr. Baker: But people will ask at once if this will not be an almost impossible task, because of its prevalence, and the great amount of money required to wage the fight. Is the expense justifiable?

Dr. Ramsey: Let us consider for a moment some *known* expenditures. The taxpayers of your own City of Baltimore, Maryland, Doctor Williams, were found to be bearing a burden of \$180,000 annually for the care of persons suffering from this disease. In the mental institutions of the State of New York, there are constantly about 3,500 cases of insanity due to syphilis, whose annual care costs our citizens two and a half millions of dollars. A large percentage of these persons have little hope of improvement and remain in institutions for many years.

Dr. Baker: There are other costs too. We have no means of ascertaining the sum expended by patients for treatment by private physicians who now are treating 65 per cent of those infected with syphilis. The costs of maintaining and rehabilitating the thousands of blind, the economic losses to industry and society, and the money wasted on quacks and attempted self-treatment, must remain matters of pure conjecture.

Dr. Williams: Certainly the expenditure of public funds for syphilis control is more than justifiable. It is imperative. With cooperation, the task is not impossible. Our people must realize that syphilis is a disease and not a disgrace. With the knowledge that any one exposed is a potential victim, that infection is often acci-



dental and may escape notice, every person should consult a physician promptly for any suspicious illness.

Dr. Ramsey: Don't you believe it true, Doctor Williams, that many intelligent people understand these facts in a general way but don't realize what part they as individuals should have in efforts to control syphilis? Shouldn't they be told specifically what to do?

Dr. Williams: Yes; to begin with, any person who has had the misfortune to acquire syphilis, but who has had the benefit of early diagnosis and an early start in treatment should aid his fellow victims. He can do this by aiding the physician in bringing under medical care any persons from whom the infection may have been acquired, or to whom it may have been given.

Dr. Baker: When patients learn the nature of their illness, frequently they want to know how long they will have to take treatment. What recommendations should we make?

Dr. Williams: If the infection is detected early and no unusual or unfavorable complications occur, about eighteen months is the average period. If the discovery is made late, it is not easy to set definite rules; every case is a problem in itself and must be judged individually.

Dr. Ramsey: What do you believe to be the most important contribution which the patient can make towards his own cure?

Dr. Williams: He must report faithfully, week by week for treatment, until his physician states that it is safe to stop.

Dr. Baker: The healthy individual as well as the patient can be of assistance.

Dr. Williams: Yes, active support is needed for measures which will make funds available for the program of control. Our officials are to be urged to make provisions for treatment of those people who are unable to afford a physician, and who otherwise would be neglected—a present menace to the public health and a potential burden on the State in years to come.

Dr. Baker: Doctor Williams, I think that we have a splendid example of what can be accomplished by cooperation and determination to wipe out pestilence right here in New Orleans. I am thinking of yellow fever—that plague which ravaged the Western Hemisphere from the seventeenth century until 1905, the year of its

last visitation upon our country. In that year, it took 434 lives in the City of New Orleans alone. Because of the application of knowledge gained regarding its transmission by the mosquito, yellow fever has now entirely disappeared from New Orleans, and from the entire United States.

Dr. Williams: Health officials have reason to be proud of the past record in control of yellow fever, smallpox, typhoid fever and other communicable diseases. If we gain active public support, and unite the efforts of health officers with those of the medical profession, surely syphilis will be the next great plague to go.

## BUREAU OF LABORATORIES

James G. McAlpine, Ph. D., Director

### CARRIERS\*

#### V. THE ROLE OF CARRIERS IN CERTAIN DISEASES (continued)

In former years malaria was a scourge which spread from the Great Lake region to the Gulf of Mexico. Due to cultivation of the land and control measures its area was greatly restricted, but during the past few years there has been a tendency for the disease to extend its habitat. For that reason more and more attention is being paid to it.

Until recently control measures have been directed mainly against the mosquito, either in the larval or adult stage. These have included ditching, drainage, oiling, spraying and screening. The human carrier has undoubtedly not received the attention that he should. The sterilization of this type of individual, be he sub-clinical or relapsing case, is of paramount importance. Unfortunately, the determination of such individuals is difficult, and when once discovered treatment is frequently unsatisfactory.

James<sup>1</sup> states, "In nature the source of malarial infection is always a human being who has in his peripheral blood the sexually differentiated forms of the parasite (gametocytes) which alone are capable of spreading the disease. In a malarious locality such gametocyte carriers must be sought among both the indigenous and the

\*Fifth in a series. The first appeared in the August issue.

1. James, S. P.: *Malaria at Home and Abroad*. London. John Bale & Danielson, Ltd., 1920.

immigrant population. Some of them may be actually suffering from an attack of fever, others may be going about their usual occupation without any symptoms of illness (*healthy malaria carriers*). . . . Circumstances which influence the number of malaria carriers in a locality are therefore important factors in connection with the spread of the disease."

It has been demonstrated that in a community where malaria is prevalent the children become infected when only a few months old. Many of these die, but the survivors have a considerable amount of immunity if it may be called such. However, in this group parasites may be found in their bloods, and the spleens will be enlarged. As they grow older these children, because of constant reinfections, become the so-called "healthy malaria carriers." Furthermore, as time goes on, their spleens decrease in size and the parasites disappear from their blood. In communities where malaria is less prevalent, the number of adults showing enlarged spleens and parasites on blood examination is more pronounced than in the case where the disease is more rampant.

It is undoubtedly true that the number of parasites in the blood of an individual and other factors determine the infectiveness of that person. Boyd<sup>2</sup> states, "Other things being equal the danger to be expected from any carrier acting as a source of infection is probably proportional to the number of relapses experienced. . . . In order that the infected person should assume a definite importance as a source of infection three conditions, or perhaps four, must be satisfied, namely:

1. *Sex*. It is necessary that male and female gametocytes be present in the circulation in about equal numbers.

2. *Age*. When gametocytes are first seen they are immature and non-infective. They probably require a week or ten days to mature.

3. They must be present in a certain minimal density.

4. To this James adds another characteristic, which he expresses as "quality" and he does not stress the density. He notes that carriers whose parasites possess the

ability to certainly and heavily infect anophelines are not common, and that this quality of slight or serious infectivity is maintained throughout several attacks. Some good infectors have a high density of gametocytes, but he is inclined to the view, that 'ripeness' may be the cause of difference."

James<sup>1</sup> writes concerning the eradication of the disease by the discovery and treatment of human cases and carriers, "this measure of attack aims at the extermination of all malaria parasites by the systematic treatment of all individuals with quinine. Dr. Robert Koch, who obtained successful results by employing it in a number of malarious localities, likened it to the campaign against cholera; just as in cholera it is necessary to search out all the sick, the convalescent, and the healthy, who harbor the cholera vibrio and to isolate and disinfect them, so in a campaign against malaria it is necessary to search out and disinfect all people who harbor the malaria parasite. The quinine treatment of all human malaria-carriers prevents Anopheline mosquitoes from becoming infected so that after a time the disease dies out." Theoretically, this is sound, but practically there are two factors to be considered, i. e., first, the location of the carriers; second, an efficacious treatment.

From the field standpoint it is extremely difficult to determine the individual who may potentially infect the mosquito. In Alabama this is especially true because large amounts of so-called "chill tonics" are taken in the malarious regions. These remedies may prevent the appearance of the parasites in the peripheral blood, and it is only by repeated examinations that they may be found. The splenic index cannot be relied upon to give the proper information.

In former years quinine was the drug of choice. However, we know now that it does not sterilize the blood in all cases and especially is this true when the crescents of *P. falciparum* are present. The Malaria Commission of the Health Organization of the League of Nations<sup>3</sup> has made a special study of the therapeutics of malaria. They

3. Malaria Commission. The Therapeutics of Malaria. Third General Report of the Malaria Commission. Quart. Bull. Health Organization. 2. 181-285. No. 2, June 1932.

2. Boyd, M. F.: An Introduction to Malariology. Cambridge, Harvard University Press. 1930.



conclude that as far as causal prophylaxis is concerned there is no drug available, but in clinical prophylaxis "that quinine is effective for this purpose and that it is the best drug to use. The correct plan is to take a daily dose of 0.4 gm. (6 grains). The daily dose should be taken throughout the period of residence in a malarious area and to avoid a relapse for several months after leaving it. Atebrine taken in a daily dose of one tablet (0.1 gm.) is also effective as a clinical prophylactic, but it cannot ordinarily be used for this purpose, as even this small dose quickly colors the skin yellow." These treatments may act as a clinical prophylactic, but they do not prevent the individual from becoming infected or becoming a carrier.

## BUREAU OF PREVENTABLE DISEASES

D. G. GILL, M. D., Director

### TYPHUS FEVER DURING 1936

The history of typhus fever in Alabama dates back to the recognition of this disease in 1922 and the gradual realization that there was an endemic focus in South Alabama. The characteristics of the disease and its association with rats and rat fleas have been carefully studied and form the basis of numerous papers.

For ten years the yearly incidence remained about the same, but in 1932 there was a sharp increase and this increase was accelerated during 1933. Extensive rat destruction programs under various relief agencies were promptly undertaken and 1934 showed a return to near the 1932 figures. Last year there was a slight increase and 1936 is going to show another increase. The first ten months of the year have already exceeded the total for 1935 so that the complete year will be considerably in excess.

The area involved has been remarkably consistent in that South Alabama, and particularly southeast Alabama, has year after year reported nearly all the cases. The same is true for 1936 in that the five counties with the highest rates are Barbour, Covington, Henry, Houston and Pike. The disquieting feature this year, however, is the tendency of the disease to spread north-

ward and involve parts of the state not previously infected. Randolph County, for example, has had six cases this year, while Jefferson County has reported eight cases. Four of these were found to be associated with a merchandise establishment and an adjoining paint store in the business section of Birmingham. This part of the city is heavily infested with rats and if the disease has become established in the rodent population, as appears to be the case, we may expect a serious problem to arise.

Control measures are, of course, directed against the rat and include poisoning, trapping and rat-proofing of buildings. The first two are merely palliative and unless continuous will not be effective. The rat-proofing of buildings is the real answer, but this is a long-time procedure and an expensive one. Ordinances requiring the rat-proofing of new structures have been passed in several cities and should be enforced in all infected cities. The voluntary rat-proofing of food-handling establishments is the most important procedure and until this can be accomplished reliance must be placed on the destruction of rats by poison or traps.

### EARLY SYPHILIS—THE CHANCER

Previous to the discovery of spirocheta pallida the initial lesion of syphilis was described in great detail. The nineteenth century diagnosis was made by watching the lesion develop after the fourth day. If signs could be fitted into the "typical picture of a hard chancre," then a diagnosis of syphilis was made. But if the lesion did not appear like the textbook description then masterful inactivity and watchful waiting were practiced until the appearance of the secondary rash or some other supporting evidence. Today the method of diagnosis is quite different. True there are certain features of the chancre in diagnosis that arouse the suspicion of the physician. The long incubation, slow course, indolence and enlargement of the adjacent lymph nodes are the salient diagnostic signs. But the absolute and clinching diagnosis is made by the laboratory. Darkfield examination of the clear serum from suspicious lesions will yield a positive diagnosis in 65-85% of the cases. Darkfield examination, when negative, should be repeated daily for

five to seven days. If enough serum can be collected a Wassermann examination may be made. This will often be found positive when the blood Wassermann is still negative. The darkfield is at its height in the first two to four weeks of the chancre. The blood Wassermann test will usually become positive after the fourth week of the chancre. But a blood Wassermann should always be made as well as a darkfield when the chancre is seen for the first time. This will give the physician the knowledge as to whether the patient is in the sero-negative or sero-positive primary stage. This is an essential point since patients whose treatment is begun in the sero-negative primary stage have an 18% better chance of ultimate "cure" than those whose treatment is delayed until the sero-positive primary stage.

---

## BUREAU OF HYGIENE AND NURSING

B. F. AUSTIN, M. D., Director

### THE COUNTY HEALTH NURSE AND THE PRACTICING PHYSICIAN

The private physician who takes advantage of all of the services available to him through the county health unit is in a position to render better treatment to his clientele than he otherwise might be equipped to give. Furthermore, the services of the county health nurse are of inestimable value to him provided only that he utilizes them intelligently as well as frequently.

Perhaps the greatest amount of good is accomplished through the maternal and child health services given by the county health nurse. The nurse visits the expectant mother in her home and gives instruction about health habits, nutrition and personal hygiene. Generalized instructions are given by the nurse, and she interprets to the expectant mother the physician's instructions. At the time of her visit into the home the nurse can take blood pressure, do urinalyses, record temperature and general condition of the expectant mother. Report of the findings of the visit is made to the physician. When untoward signs or symptoms are observed a report is made to the physician promptly by telephone. These services are of vast importance to the phy-

sician whose clientele live in the rural sections.

When the physician reports births promptly and requests it, the services of the nurse may be had for home visiting and instruction regarding carrying out his orders. These services are available to physicians for mother and infant.

Another service the nurse renders the private physician is in her preschool and school follow-up work when she urges parents to carry their children to the family physician for examination and treatment for correcting remediable defects. She emphasizes the importance of early diagnosis in all forms of illness. She is particularly helpful to the physician in cases of communicable diseases. She gives bedside instruction regarding methods of isolation and handling the patient, emphasizing the importance of following strictly the instruction of the physician.

The morbidity service the county health nurse renders, in such cases as tuberculosis and typhoid fever, is of extraordinary value to the physician as well as to the family and community. In these cases she instructs members of the family regarding the disposal of excretions, handling dishes used by the patient, bedside nursing for instruction and isolation of the patient.

In her educational activities the county health nurse accomplishes much toward making the public health conscious to the extent that the individuals will consult the private physician in matters pertaining to their personal health. This is especially noticeable in regard to physical examinations. When persons are instructed to go to the physician of their choice for medical examination the county health nurse should feel confident that the physicians of the community are sufficiently interested that they will make the best medical examinations they possibly can make and will give their examinees sound advice.

Physicians should constantly call upon the personnel of the county health unit for services that will be helpful to them as practitioners in their profession and to the people of the community in which they live. The services of the county health nurse can be used for the mutual benefit of all concerned in the health of the community and more specifically with regard to maternal and child health, school health, the control



of communicable diseases and especially in the care of cases of tuberculosis and typhoid fever. All physicians are, therefore, urged to avail themselves of the splendid services made available by the presence of the county health nurse.

## BUREAU OF SANITATION

G. H. HAZLEHURST, C. E., M. C. E., Director

### PHYSIOLOGICAL EFFECTS OF MINERAL SALTS IN NATURAL WATERS

There appeared in this Journal, in the June 1932 issue, an article dealing with the chemical qualities of public water supplies, discussing the limits of tolerance of certain constituents as related to potability as well as possible health implications.

An article which deals more fully with the subject from the physiological aspect has appeared in the August 1936 issue of the Journal of the American Water Works Association under the title above, written by C. B. Pollard, Associate Professor of Chemistry, University of Florida, Gainesville, Florida. It is abstracted herewith for the light it throws on the subject, discussed by the local members of the medical profession, laymen and officials of some of our Alabama municipalities.

"Although a great deal of research work in this field has not been done, we do now realize the importance of reliable results from carefully controlled experiments. In some cases we find conflicting results from experimental work which indicate that some factors have not been controlled with sufficient care.

"Hard waters have been blamed for such diseases as urinary concretions, arteriosclerosis, dyspepsia, goiter, diarrhea, constipation, rheumatism and stomach disorders. At a meeting of English medical men in 1911, Lewis<sup>1</sup> exonerated hard waters. . . . He stated that when medicinal doses of calcium salts are given, only small amounts enter the circulation, and their effects outside the digestive tract are not very profound. The calcium content of the blood is raised with difficulty by feeding calcium salts and these compounds are of little assistance when the body needs to assimilate more calcium as it does in cases of rickets and fractures. Lewis also states that bottled waters are frequently substituted for the harder local supplies by the upper class of people and no increase in illness has been noted.

"In contrast we find some European authorities<sup>2</sup> who have noted that better teeth, body weight and

nerves are produced in communities where hard water is used for drinking. If hard water is a suitable source of available calcium its importance to bone and teeth development in children is of course obvious.

"In view of the variety of opinions with respect to the role of hard waters in the formation of kidney stones Meyers<sup>3</sup> made a study of this problem. Using rats and rabbits as test animals he proceeded on the theory that a solid object must first be present in the urinary tract to act as a nucleus for a concretion. By first introducing a foreign solid into the bladder he was able to produce concretions. However, he found but little more deposition from hard than from soft distilled water. He concluded that even though hard waters may contribute more solid matter to urinary concretions than do soft waters, an abnormal condition must first exist or the stones will not form.

"From the rather limited study of mortality rates the tentative conclusion may be reached that the statistical evidence indicates no relation between hardness in drinking water and deaths from diseases of the arteries, kidneys and bladder. It would be of great interest, however, to extend this inquiry by making a detailed study of mortality in specific municipalities with water supplies of various degrees of hardness and with various proportions of permanent and temporary hardness.

"Lewis contends that if calcium is needed by a degenerative process the body store provides this without calling on that which is present in drinking water. Part of the mineral matter from water is undoubtedly used. The body is able, however, to eliminate most of the minerals through the intestines and kidneys. Cumulative poisons are an exception, but since these are normally not found in municipal supplies they warrant no consideration here. In general, the salts which are eliminated by the intestines are those which are not absorbed through its walls. Salts such as magnesium sulfate (Epsom salt) and sodium sulfate (Glaubers salt) carry water with them through the intestines and are strong purgatives when used in large doses. However, but few public water supplies carry enough of these salts to exert a pronounced physiological effect.

"The bicarbonates of calcium and magnesium are frequently encountered in drinking water. Their presence has been the source of considerable discussion. Bicarbonates are of course present in the body and are essential in aiding the blood to resist conditions which would tend to shift the acid-alkali balance which must be held within rather narrow limits. It is reported that as much as 5 gms. per day of sodium bicarbonate can be tolerated by a normal person before shifting the urine to the alkaline side. This indicates that the bicarbonate is neutralized by the hydrochloric acid of the stomach. However, authorities differ in their opinions concerning the roles of carbonates and hydroxides in digestion.

"Salts such as sodium chloride<sup>4</sup> and sodium

1. Lewis, P. G., *British Medical Journal*, 2, 158 (1911).
2. Opitz, Deutsch, med. Wochenschrift, 46, 1391, (1920).

3. Myers, J. T., *Journal of Infectious Diseases*, 36, 566 (1925); 37, 13 (1935).
4. Cushny's *Pharmacology and Therapeutics*. Lea and Febiger, Philadelphia (1928), p. 314.

nitrate are capable of passing through the intestinal walls, are absorbed by the kidneys and eliminated in the urine. This produces thirst and satisfaction of the thirst flushes the salt from the system. Potassium nitrate seems to be more effective in this respect and is sometimes used as a diuretic.<sup>5</sup> The necessary dosage is small enough to include some natural waters.<sup>6</sup> Any form of nitrogen in water indicates organic pollution, but where nitrate is the only form found the organic matter has been oxidized to its greatest extent and is considered harmless from a sanitary standpoint.

"Sherman<sup>7</sup> places the actual requirement for iron in the case of adults at about 0.01 grain per day. Iron is used by the organism in the production of the hemoglobin of the red blood corpuscles and in the formation of other hemo compounds which are widely distributed in tissues where they play important roles in cellular oxidation. Whipple and his associates<sup>8</sup> have contributed much to our knowledge of the relation of diet to blood regeneration. They have shown that meat, particularly that of organs (heart and liver) is especially beneficial in hemoglobin and red cell formation. There has been considerable variation of opinions with respect to whether iron salts that occur in water could be assimilated by the body.<sup>9</sup> However, the work of Hart, Steenbock, Waddell and Elvehjem shows that the ash of beef liver is as effective as the liver in stimulating the utilization of iron and the production of red blood corpuscles. However, since iron produces an unpleasant taste and rust spots, it is highly improbable that we shall ever depend on the iron content of drinking water for our body supply of iron.

"Manganese is occasionally found in natural waters and has been credited with the production of dark stains on teeth.<sup>10</sup>

"Recent research work has shown that even pure copper salts, such as copper sulfate, exert a favorable effect in preventing and curing nutritional anemia. This work has stimulated research investigations dealing with aluminum, zinc and manganese.

"The question of the role of iodine in maintaining optimum conditions for health has long been under discussion. Conflicting data leave us where we wonder that the correct answer will be.

"Marine and Kimball<sup>11</sup> showed that iodine was deficient in parts of Switzerland and the Great Lakes region where goiter was quite common.

"Shore and Andrew<sup>12</sup> report that a study of three different areas shows that no relation could be observed between the incidence of goiter in school children and the amount of iodine available.

"Krauze<sup>13</sup> reports a wide variation in the iodine content of the waters of Poland. Statistics show no relation between the iodine content of the waters and the occurrence of goiter.

"Van Dyke<sup>14</sup> has obtained results which indicate that iodine from iodides is more readily absorbed by the body than iodine from iodates. Free iodine is not readily absorbed.

"In 1924, Olsen<sup>15</sup> summarizing the data on iodine administration states that numerous methods have been proposed but the most suitable one is administration of a chocolate tablet containing 10 mg. of iodine in the form of an organic acid. He comments on iodized foods and water and calls attention to the fact that the hypersusceptible cases of goiter are in great danger.

"At a recent demonstration<sup>16</sup> in the RCA Building in New York, a group of executives witnessed with unusual interest the almost unbelievable action of colloidal iodine on a withered orchid. The orchid, dead from a practical point of view, was taken from a trash heap. A teaspoonful of an amber-tinted liquid was added to the quart of water in the bottle which held the orchid. The orchid bloomed again, its petals fresh, crisp and its colors vivid. The amber-tinted liquid was colloidal iodine. Apparently the physiological effects of colloidal iodine are quite different from those of free iodine.

"The elements hydrogen, carbon, oxygen, nitrogen, sulfur, phosphorus, potassium, sodium, lithium, calcium, magnesium, iron, silicon, chlorine, bromine, iodine, fluorine, aluminum, arsenic, cobalt, copper, nickel, zinc, and vanadium are known to be more or less widely distributed in animal tissues. A number of these elements are found in only minute quantities within living organisms. In view of this, little or no attention has been paid to their presence or function until recently. Although the percentage of some of these elements in the human body amounts to a very small value (0.01-0.16 percent) we may find that even the very small amounts are far more essential to health than we have ever imagined. A considerable amount of research on fluorine in Florida waters,<sup>17</sup> is being done at the present time. We await the results of this work with a great deal of interest.

5. Sollman, A Manual of Pharmacology, W. B. Saunders Co., Philadelphia (1917).
6. Young, C. C., J. Amer. Medical Assoc., 56, 1881 (1911).
7. Sherman, H. C., Harvey Lectures (1917-1919), p. 117.
8. Whipple and Associates, Am. J. Physical., 53, 151 (1920); 72, 408, 419, 431 (1925).
9. Hart, Steenbock, Waddell and Elvehjem, J. Biol. Chem., 77, 797 (1928); 83, 243, 251 (1929).
10. McKay, F. S., Water Works Engineering, 81, 1037 (1928).
11. Marine and Kimball, J. Amer. Medical Assoc., 77, 1068 (1921).
12. Shore, R. A., and Andrew, R. L., New Zealand Department Sci. Ind. Research, Department of Health Bull. No. 45 (1934).
13. Krauze, S., Wiadomosci Farm., 62, 85-8, 101-4 (1935).
14. Van Dyke, Arch. Int. Med., 41, 615 (1928).
15. Olsen, R., U. S. Public Health Reports, 39, No 2, 45 (1924).
16. Rockefeller Center Weekly, October 31, 1935.
17. Black, A. P., Stearns, T. W., McClane, J. H., and McClane, T. K., Fluorine in Florida Waters, Proc. Ninth Annual Convention, Florida Section, A. W. W. A.



"The discovery of one new truth which can be utilized to improve health will make our research efforts well worth while."

## BUREAU OF VITAL STATISTICS

LEONARD V. PHELPS, S. B. in P. H., Director  
INFANT MORTALITY

In 1935 there were 3,96 deaths of infants under one year of age. This figure represents a reduction of 401 or 9.3 per cent fewer deaths than in the preceding year (1934). The trend, referred to the 1932 value, was upward in 1933 and 1934; then it was downward in 1935. It would appear, on the basis of the reported number of infant deaths during the first nine months of 1936, that the upward trend previously referred to has been resumed.

The trend in infant mortality, when considered over a longer period of time (1925-1936), has been slightly downward. However, the decline has not been as rapid as one would like it to be and, unless a reduction can be effected in the infant mortality rate very shortly, the curve of historical incidence will be flat or upward.

It is very apparent that the major reduction in infant mortality has been among infants (1-11 months). Except for the increase in the rate in 1934, a steady decline has been recorded for many years. The reduction was most rapid during 1928-1933. The 1935 rate, although considerably less, was several points above the figure which would have been expected had the downward trend continued.

In 1925, approximately 54 of each 100 infant deaths were of infants under one month. With the reduction in mortality among those (1-11 months), the proportion in this age group increased to a maximum figure of 63.0 per cent in 1933. This figure declined to 54.4 in 1934 and then rose to 59.0 in 1935. The mean per cent for the 11 year period (1925-1935) was 56.4. It is of interest to note that it was in 1933 that the number of live births was the smallest ever recorded.

The general trend in the mortality rate of infants under one month has been neither up nor down, but practically flat (1925-1935). It might be expected, therefore, that the mortality rate of infants under one day would certainly not have a downward trend and possibly an upward

one. Such is the case. However, the upward trend since 1931 has not been as pronounced as that recorded (1926-1933).

The mean per cent of infant deaths under one day (1925-1935) was 24.4. Over the 11 year period the proportion of deaths in the age group under one day has gradually increased.

Infant mortality rates according to age and year are recorded in the following table:

### NUMBER OF INFANT DEATHS PER 1,000 LIVE BIRTHS

Alabama, 1925-1936

| Year  | AGE             |                |                |              |
|-------|-----------------|----------------|----------------|--------------|
|       | Under<br>1 Year | Under<br>1 Mo. | Under<br>1 Day | 1-11<br>Mos. |
| 1925  | 72.5            | 39.4           | 16.6           | 33.2         |
| 1926  | 69.4            | 36.1           | 14.8           | 33.2         |
| 1927  | 64.2            | 35.9           | 15.8           | 28.3         |
| 1928  | 74.4            | 40.0           | 16.5           | 34.4         |
| 1929  | 73.9            | 41.5           | 17.8           | 32.4         |
| 1930  | 71.9            | 40.4           | 18.1           | 31.5         |
| 1931  | 61.4            | 36.0           | 15.7           | 25.4         |
| 1932  | 60.6            | 36.1           | 16.2           | 24.5         |
| 1933  | 65.5            | 41.4           | 17.2           | 24.0         |
| 1934  | 67.3            | 36.6           | 16.4           | 30.6         |
| 1935  | 62.5            | 36.9           | 16.4           | 25.7         |
| *1936 | 65.9            | **             | **             | **           |

\*Estimate on basis of reported deaths January-September.

\*\*Data not available.

## CURRENT STATISTICS

### \*PREVALENCE OF COMMUNICABLE DISEASES IN ALABAMA

1936

|                       | Estimated<br>Expectancy |      |
|-----------------------|-------------------------|------|
|                       | Sept.                   | Oct. |
| Typhoid               | 83                      | 63   |
| Typhus                | 28                      | 51   |
| Malaria               | 1249                    | 2948 |
| Smallpox              | 0                       | 1    |
| Measles               | 0                       | 3    |
| Scarlet fever         | 50                      | 117  |
| Whooping cough        | 36                      | 51   |
| Diphtheria            | 129                     | 208  |
| Influenza             | 33                      | 83   |
| Mumps                 | 25                      | 45   |
| Poliomyelitis         | 39                      | 30   |
| Encephalitis          | 1                       | 0    |
| Chickenpox            | 2                       | 23   |
| Tetanus               | 5                       | 8    |
| Tuberculosis          | 226                     | 279  |
| Pellagra              | 17                      | 11   |
| Meningitis            | 6                       | 6    |
| Pneumonia             | 73                      | 78   |
| Syphilis              | 1018                    | 1454 |
| Chancroid             | 13                      | 8    |
| Gonorrhea             | 309                     | 355  |
| Ophthalmia neonatorum | 1                       | 0    |
| Trachoma              | 0                       | 0    |
| Tularemia             | 0                       | 0    |
| Undulant fever        | 1                       | 5    |
| Dengue                | 0                       | 5    |
| Amebic dysentery      | 0                       | 3    |
| Rabies—Human cases    | 1                       | 0    |
| Positive animal heads | 46                      | 52   |

\*As reported by physicians and including deaths not reported as cases.

The Estimated Expectancy represents the median incidence of the past nine years. With the venereal diseases, clinic cases were not included prior to this year.

## Truth About Medicines

### PROPAGANDA FOR REFORM

The Present Status of Tetrachlorethylene.—The Council on Pharmacy and Chemistry reports that tetrachlorethylene-N. F. is an unsaturated halogenated aliphatic hydrocarbon with specific gravity of 1.60, a boiling point of 121 C. and a chlorine content of 85.5 per cent. Its claimed usefulness in the treatment of hookworm infestation is based on many clinical and experimental reports. After animal experiments, experience with carbon tetrachloride and other related compounds, Hall and Shillinger employed it clinically. Other workers, Christiansen and Lynch, Schlingman and Gruhzit, Maplestone and Chopra, Maplestone and Mukerji, Kendrick, and Lamson have all reported favorably on its use. Lambert used it in a series of 46,000 cases and encountered fewer toxic symptoms than with other agents or combinations with other agents in an additional 200,000 cases. The reported toxic effects consist of giddiness, vomiting and drowsiness. The details of its clinical use, its actions and dosage will appear in the 1937 edition of New and Nonofficial Remedies. (J. A. M. A., Oct. 3, 1936, p. 1132.)

The Nomenclature of Estrus-Producing Compounds.—The Council on Pharmacy and Chemistry reports that there are at least seven naturally occurring estrogenic substances that have been isolated in a crystalline condition. As the result of investigations by Butenandt, Cook, Doisy, Marrian and their respective associates the structure of these and related compounds has been definitely established. Two systems of nomenclature have been proposed; one by Girard using the root "folli-" with suffixes to indicate the nature of the compounds; the other by Adam and his collaborators using the root "oestr-" with certain modifications. In view of the importance of Edgar Allen's investigations in opening up the field of the follicular hormone and of Doisy's contributions in isolating the first crystalline estrus-producing compound and the further fact that the Council has approved theelin as a common name, the Advisory Committee on the Nomenclature of Endocrine Principles considered a proposal to retain "theel-" as the root for the names

of the estrus-producing compounds. However, in view of the fact that the system of nomenclature devised by Adam and his collaborators has been fairly widely adopted among investigators, it appeared inadvisable to supplant this system even though the new system based on "theel-" was simpler and more nearly in accord with the nomenclature for the androgens. Accordingly, the Council, on the recommendation of the Advisory Committee on the Nomenclature of Endocrine Principles, decided (1) to adopt the system of nomenclature based on the root *estr-*; (2) to retain *theelin*, *theelol* and *dihydrotheelin* as synonyms for the compounds known in the aforementioned system as *estrone*, *estriol* and *estradiol* respectively; and (3) to adopt the term *estrogenic* to describe those compounds or extracts which in addition to their other physiologic properties produce estrus, and to adopt the noun *estrogen* as the collective term for all the substances having these properties. (J. A. M. A., Oct. 10, 1936, p. 1331.)

The Use of Trichloroethylene for General Anesthesia.—Trichloroethylene for use by inhalation in the treatment of trigeminal neuralgia is accepted for inclusion in New and Nonofficial Remedies. Recently, however, trichloroethylene has been used as a general anesthetic. The product used for this purpose differed from that used in the treatment of trigeminal neuralgia. It contained no added diluent or stabilizing agent and the boiling points were more closely defined. Its chief danger lies in its rapid effect. The clinical report of 300 anesthetics and analgesics included twenty-five dental cases, twenty-five cases of removal of venereal warts and 198 cervical cauterizations. The authors state that as yet they have not used trichloroethylene in laparotomies or other major surgical procedures (except in experimental animals). The Council held that the available evidence does not justify the acceptance of trichloroethylene for use as a general anesthetic and postponed consideration to await (a) solution of the question of potential toxicity of decomposition products of the drug and (b) development of the evidence to substantiate the claims for its clinical use as a general anesthetic. (J. A. M. A., Oct. 17, 1936, p. 1302.)



# THE JOURNAL

OF

## The Medical Association of The State of Alabama

Published Under the Auspices of the Board of Censors

Vol. 6, No. 7

Montgomery, Alabama

January 1937

### CARCINOMA OF THE LARGE BOWEL

#### A REVIEW OF THE LITERATURE WITH CASE REPORTS\*

By

JOHN L. CARMICHAEL, M. D.  
Birmingham, Alabama

and

W. M. CARMICHAEL, M. D.  
Fairfield, Alabama

According to the late Dr. J. C. Bloodgood<sup>1</sup> the first operation for cancer of the rectum at Johns Hopkins Hospital was done about 1892. The patient lived approximately four years and died of metastasis to the liver after an illness of less than two months. The first cancer of the colon to be operated upon was situated in the sigmoid and was resected with successful end to end anastomosis by Dr. Halstead in 1902. This patient lived six years and died of metastasis to the retroperitoneal glands. The first cancer of the rectum to be cured permanently by a complete Kraske operation was operated on in 1900. This patient lived to a good old age, dying in 1928. These cases at Johns Hopkins Hospital were among the earliest, if not the very earliest, cases of operation for cancer of the large bowel that were done.

Since these early efforts at the treatment of malignant disease of the large bowel, much progress has been made in the methods of diagnosis and in the surgical treatment of the condition. Daniel F. Jones<sup>2</sup> in a recent article estimated that 45 to 50 per cent of cases of cancer of the colon coming to operation live in comfort for five or more years after operation. In spite of this progress in the surgical treatment and in spite of improved methods in diagnosis,

this disease has remained probably one of the most neglected of those diseases amenable to surgical treatment.

The long delay of metastasis which characterizes cancer in this region, conferring as it does greater opportunity for cure, accentuates the tragedy of neglect. Henri Hausman<sup>3</sup> about 1911 reported from autopsy records that of 112 patients dying of cancer of the colon the growth was still limited to the bowel in 50 per cent of the cases. The Mayo Clinic<sup>4</sup> reports that in only 43 per cent of their operated cases of cancer of the colon is metastasis found in the lymph nodes.

Jones<sup>2</sup> estimates that about 1200 cases of cancer of the colon and rectum die each year in Massachusetts and that probably not more than 150 of these are given the advantage of radical operation.

The importance of the disease is emphasized when its relative incidence is considered. In the 21,648 autopsies done at the University of Minnesota,<sup>5</sup> up to July 1933, there were found 723 cases of cancer of the gastro-intestinal tract, exclusive of carcinoid tumors of the appendix and neoplasms of the gallbladder and pancreas, an incidence of 3.1-3 per cent. Of these 723 cases, 214 were of the large bowel and anus; or approximately one per cent of all deaths in this series of 2,648 cases were caused by carcinoma of the large bowel and anus. The curability of cancer of the large bowel, enhanced as it is by the delay in metastasis of neoplasms in this region, should, we believe, elicit from us as phy-

\*Read before the Birmingham Baptist Hospital Staff Meeting, July 14, 1936.

1. Bloodgood, J. C.: Cancer of Colon and Rectum, *Annals of Surgery*, April 1932.

2. Jones, Daniel F.: The Diagnosis and Principles of Treatment of Carcinoma of Colon and Rectum, *Annals of Surgery*, pp. 860-870, November 1931.

3. Quoted by Daniel F. Jones in *The Diagnosis and Principles of Treatment of Carcinoma of Colon and Rectum*, *Annals of Surgery*, pp. 860-870, Nov. 1931.

4. Quoted by Daniel F. Jones in *The Diagnosis and Principles of Treatment of Carcinoma of Colon and Rectum*, *Annals of Surgery*, pp. 860-870, Nov. 1931.

5. Larson, Lawrence M., and Nordland, Martin: Malignant Tumors of Large Intestine, *Annals of Surgery*, pp. 328-334, Aug. 1934.

sicians more interest in the diagnosis and treatment of this condition than it has in the past.

The chief problem in the handling of these cases of carcinoma is, as always, that of early diagnosis. If we hope to give our patients the best that is available to them with present day knowledge we must learn to look for symptoms which, on casual consideration, we might consider of no significance. Having elicited the mild symptoms, we must be prepared to do sigmoidoscopic study of the lower portion of the large bowel and supplement this with fluoroscopic and x-ray studies with the barium enema. Sigmoidoscopic examination is a comparatively simple procedure. It requires very little equipment, a properly lighted sigmoidoscope being all that is essential. With the patient in the knee-chest position, and without the expensive rectal table, a very satisfactory examination can usually be made. Fortunately, from the standpoint of diagnosis, all series of large bowel cancer show by far the majority to occur in the lower sigmoid, rectosigmoid, rectum and anus. These can all be brought into view for direct inspection by the usual 25 cm. sigmoidoscope.

What cases shall be subjected to these examinations? The paucity of symptoms is so marked in some cases that such a surgeon as the late Dr. Bloodgood<sup>1</sup> of Hopkins and such an x-ray specialist as Dr. Kirklin<sup>6</sup> of the Mayo Clinic have felt that it is not an unnecessary precaution to have thorough roentgenologic gastro-intestinal studies made as a part of the periodic health examination. Most of us, however, shall probably have to content ourselves, for a time at least, with studying thoroughly only those cases that present some symptoms suggestive of intestinal disorder.

Priestly and Bargaen<sup>7</sup> have presented a very interesting study of the early symptoms of cancer of the large bowel. They have gone to the Mayo Clinic records and picked out records of 100 cases of cancer in each of the following regions: (1) the

cecum and ascending colon; (2) the transverse colon; (3) the descending and sigmoid colon; and (4) the rectosigmoid and rectum. They found that pain was present at some time in 86 of the 100 cases of cancer of the cecum and ascending colon. The pain was most commonly a constant dull ache in the right lower quadrant. Sometimes it simulated subacute appendicitis beginning with generalized abdominal distress and later localizing over the region of the cecum. In 29 of the cases there was a mass. Indigestion was a complaint noted by 38 of these patients. Other symptoms observed by them were pallor, loss of weight, change in bowel habit and the passage of blood and mucus.

In the 100 cases of cancer of the transverse colon these authors found pain to be the initial symptom in 49 cases. Pain in cases presenting these lesions was intermittent in character and like colic. This pain often occurred after meals and might be relieved by the passage of stool or gas. The relation of the pain to the taking of food may be so marked as to simulate peptic ulcer. The pain may be so severe that morphine is required to ease it. Definite obstructive attacks, gradually increasing constipation, blood in stools, loss of weight and strength and palpable tumor are other symptoms noted.

In the cases involving the descending colon and sigmoid the initial symptom in forty was pain and seventy-five at some time or other experienced pain. The pain in these cases was more commonly a dull ache with periodic acute cramps. Most cases experienced this pain in the lower left side of the abdomen but sometimes it was not definitely localized.

In 37 of these cases the initial complaint was increasing constipation or evidence of obstruction. In 24 cases the first symptom was an obstructive attack developing suddenly. Fifty-five of the patients sooner or later had a sudden obstructive seizure. Blood in the stool is commonly mistaken for hemorrhoidal bleeding.

In cases of cancer of the rectosigmoid and rectum, change in bowel habit was the most common initial symptom. It occurred in 47 cases. Eighty-nine had experienced at sometime or other constipation or diarrhea or both alternately. Rectal bleeding was the first symptom in 39 cases. It oc-

6. Kirkland, B. R. and Weber, Harry M.: Roentgenologic Manifestations and Differential Diagnosis of Carcinoma of Colon, Bulletin of the New York Academy of Medicine, June 1932, pp. 366-388, Second Series, Vol. VIII, No. 6.

7. Priestly and Bargaen: Carcinoma of Large Intestine, American Journal of Surgery, Dec. 1933, New Series, Vol. XXII, No. 3.



curred in 96 of the cases at some time with or without mucus. Ten of these patients had had operations while the malignant lesion had existed. Sixty of these patients experienced pain at one time or other.

Saltzstein and Sandweiss<sup>8</sup> in an analysis of 213 cases of large bowel cancer reach substantially the same conclusions. They emphasize the tendency to obstructive symptoms in cancer of the left half of the colon.

A detailed discussion of the technic of the surgical procedures employed would not be proper here. We wish, however, to call attention to a few factors making for success. It is essential in the obstructive cases to decompress the proximal portion of the bowel. If this can not be done by repeated colonic lavages, a cecostomy may be resorted to. This decompression allows edematous bowel to become healthy and gives a chance for infiltration infection to subside. Two stage operations are usually to be preferred. Another necessity is to preserve sufficient blood supply to the ends of the proximal and distal portions of the bowel to prevent sloughing of the suture line.

#### REPORT OF CASES

*Case No. 1—D-308.* Mrs. B. C., white, female, age 74 years, was seen in the office on January 10, 1935, complaining chiefly of bleeding piles of 6 days duration. She stated that she had had bleeding from piles for at least 10 years. The attacks of bleeding had occurred at intervals of several months usually but the last attack before this was two weeks previous to the consultation. She notices bleeding now only on defecation and this is without pain. There is some discomfort in the lower bowel, however, and a constant backache. During the attack as much as a cup of blood is passed at one time. In the beginning of the attack it is bright red in color but at the end dark clots are passed. She is badly constipated and this has gradually become worse over a period of several years. Her stools are much smaller in size than usual. Before the attack of bleeding comes on there is more than usual back pain. There is considerable mucus mixed with blood during the attack.

Her appetite is good and her digestion excellent if certain foods are excluded from her diet. She has had a weight loss of 12 to 15 pounds in the last year but during the past three months there has been a considerable gain. Her family and past history are irrelevant except that one brother died of cancer of the face. On the date of the first consultation her hemoglobin was 75 per cent (Sahli), white blood cells, 9,750; polymorphonuclear leuco-

cytes 69, small mononuclears 27, large mononuclears 2, eosinophiles 2, and total red blood cells 4,695,000. Urinalysis showed no albumin or sugar or abnormal microscopic elements. The patient was asked to return to the office on the following day for sigmoidoscopic examination. Rectal digital examination on this day was negative except for hemorrhoids, but sigmoidoscopic examination revealed on the left lower wall of the rectum, 15 centimeters from the anus, a papillomatous growth two and one-half centimeters in length and one and one-half centimeters at greatest diameter. This was attached to the bowel wall by a pedicle approximately one centimeter in diameter.

A small section was taken from the distal portion of the growth and referred to Dr. G. S. Graham for pathological study. His report was as follows: "The material consists of cauliflower masses consisting largely of long papillary formations covered by high columnar epithelium of neoplastic type. The basal portions consist of fibrous tissue with occasional smooth muscle remnants. The smooth muscle is infiltrated by tumor but the exact extent of the infiltration cannot be made out due to the apparent superficial nature of the fragments. Microscopical diagnosis: Adenocarcinoma. Grade II."

She was admitted to the Birmingham Baptist Hospital on January 30, and on the following day under sacral anesthesia, through a short proctoscope, we removed the growth with the high frequency cutting current and coagulated the base as deeply as we thought safe with the coagulating current. We referred her to the roentgenologist for deep x-ray therapy and to the present time she has had several series of deep x-ray exposures, the last about five months ago. In the last sigmoidoscopic examination about one month ago the growth had extended only slightly on the mucous membrane and there was no tendency to obstruction of the bowel.

This would have been a case suitable for combined abdomino-perineal resection had the patient been younger. At the age of 74 and with a non-obstructive lesion we believed it better judgment to carry out the more conservative treatment. We hope to hold the growth in check until she has lived out her life expectancy. She now appears in good health about eighteen months since operation.

*Case No. 2—C-8897.* W. W., male, age 51 merchant. Admitted to the Birmingham Baptist Hospital on December 21, 1933. The symptoms were those of intestinal obstruction. There were nausea and vomiting, audible intestinal peristalsis and abdominal distension. The signs of obstruction had existed with less severity for several days. Repeated enemata before admission to the hospital had failed to empty the intestinal tract. Past history was given of an attack somewhat similar two months previously which had subsided in a few days. Gastro-intestinal series without barium enema after the previous attack had been essentially negative. Examination otherwise revealed a chronic myocarditis and a chronic nephritis with only slight hypertension.

Barium enema during the present attack was advised and the roentgenologist reported "complete obstruction of the middle portion of the descending colon." A cecostomy was done under local in-

8. Saltzstein, Harry C., and Sandweiss, David J.: Cancer of Colon and Rectum, *Annals of Surgery*, January 1931.

filtration anesthesia on the day after admission. His progress was satisfactory and about two weeks later on January 5, 1934, through a left rectus incision, the abdomen was opened under local anesthesia. An angular growth was found in the descending colon just above the proximal end of the sigmoid. It was found suitable for resection by the Mikulicz type of operation. A loop of the bowel containing the growth was freed of its parietal attachment and brought outside of the abdomen and the wound closed around this. Obstructing clamps were placed proximal and distal to the growth and the section of bowel containing the growth was removed by cautery.

Report of the pathologist was as follows: "Gross description: Specimen consists of a segment of large intestine 8 cm. long. At middle zone there can be felt a firm tumor. Surface overlying it is deeply indented in most of the circumference of the bowel. On section the indentation corresponds with a tumor completely encircling the bowel wall and reducing the lumen to about lead-pencil size. The tumor mass is 1 to 2 cm. wide sharply outlined and extends from the inner bowel surface through the entire thickness of the wall to serosa. The mesenteric fat adherent to the specimen contains several small lymph nodes, none of which shows gross evidence of tumor involvement with the possible exception of one node 0.9 cm. long which is of firmer consistency.

"Microscopical description: Sections show a tumor consisting of epithelial cells arranged in tubular form. The cells are large, relatively undifferentiated and in some places show no attempt at mucus formation. Mitosis is only occasional. The tumor replaces the inner muscular layer of wall but has not penetrated the longitudinal layer. Surface of the tumor shows ulceration and hemorrhage. Lymph nodes are not involved in the process. Diagnosis: Adenocarcinoma of large intestine, Grade II. Lymph nodes are free of metastasis."

Although this patient is in poor health because of advanced cardiorenal disease there does not appear to have been any metastasis and it is now about two and one-half years since operation.

*Case No. 3—C-1840.* H. H. E., male, age 44. This patient was seen some days before his admission to the Birmingham Baptist Hospital on February 24, 1939. He was complaining of indigestion with cramp-like pains in the upper abdomen. These had been present for about three months. For about the same period of time he had noticed unusual constipation. Family and past history were not relevant except for the fact that the patient had learned in 1928, two years before, that he was a diabetic. At the time of the examination he was taking 11 units of insulin in the morning and 8 units at night.

Physical examination was essentially negative, except for a moderate pallor and a right-sided abdominal mass, apparently the size of a small lemon. This mass was fairly movable.

The possibility of carcinoma was considered and x-rays were made. There was a filling defect in the ascending colon in the area of the mass. Roentgenologically the diagnosis was carcinoma of the colon.

The patient was transfused on February 26 and on the following day, under spinal anesthesia, the abdomen was opened through a long right rectus incision. The ascending colon, including the tumor, was freed by incising the parietal peritoneum just lateral to and parallel to the bowel. This portion of the bowel was brought forward and over toward the left, freeing the posterior parietal peritoneum and the loose areolar tissue behind it from the posterior wall of the abdominal cavity. The large bowel was severed between clamps by the cautery near the hepatic flexure and the small bowel likewise severed a few inches from the ileocecal valve. A side to side anastomosis of the ileum to the colon was done and the abdomen closed with drains. The convalescence was uneventful and the patient left the hospital in twelve days.

The following is the pathologist's report on the specimen removed: "Gross description: Specimen consists of a large segment of bowel 24 cm. long consisting of cecum, terminal 3 to 4 cm. of ileum and the proximal ascending colon. Ten cm. above the top of the cecum there is an indentation of the wall and beneath it can be felt a firm tumor mass. On section there is a protruding cauliflower tumor with irregularly ulcerated surfaces. It is dense in consistence, dull yellowish white in color. The protruding mass extends about half way around the lumen and leaves only a tortuous open channel along one side of the lumen. Here also the bowel surface is ulcerated and the wall is thickened, apparently by a thinner tumor growth. Over this portion of the bowel wall the tumor forms an outward projection on the serous surface.

"Microscopical description: Sections show a large intestine. The wall is infiltrated by many wide columns of epithelial cells. There is little suggestion of lumen formation. In one section the columnar epithelium of the surface glands can be traced into the upper portion of these solid columns but the cells of the columns do not suggest the columnar cells of the normal mucosa. There are large numbers of mitotic figures. The tumor penetrates the intestinal wall and reaches the mesenteric fat. Microscopical diagnosis: Adenocarcinoma. Grade IV."

This patient, now six and one-half years since operation, remains apparently in good health and without recurrence of the tumor. His digestion and bowel habits have been normal.

This six and one-half year cure of a case of grade IV carcinoma of the colon is our apology for presenting so small a series of cases of carcinoma of the large bowel and emphasizes correctly, we believe, the curability of carcinoma of the large bowel.

#### SUMMARY

1. A short review of the literature on carcinoma of the large bowel as it deals with incidence, symptomatology, curability, etc., is presented.

2. A few factors in the surgical management are mentioned.

3. Three cases are reported, each occurring in a different region of the large



bowel. One, a six and one-half cure of a grade IV carcinoma of the ascending colon, emphasizes the curability of large bowel cancer.

---

## ERRORS OF REFRACTION AS THEY RELATE TO THE GENERAL PHYSICIAN\*

By  
WILLIAM B. CLARK, M. D.  
New Orleans, La.

The facts concerning the subject under discussion are not generally known. It is my desire, therefore, to acquaint all physicians with conditions as they exist here and throughout the country. Some with whom I have talked have been surprised to learn that many general physicians do not refer their patients with visual defects to oculists but to others less well equipped to correct errors of refraction. Some even say to their patients, "You may need glasses. You had better get a pair."

My first plea is for the patient's welfare. Those who suspect an ocular disorder and do not specifically tell the patient that he should consult an ophthalmologist do not meet their first obligation. In my opinion a man who does not have a degree as doctor of medicine from a recognized medical school and a license to practice medicine and surgery in his state should not attempt to treat disorders of the eyes (errors of refraction not excepted), any more so than he would diseases of the lungs, heart, liver, central nervous system or other part of the human anatomy.

As you are aware, almost anyone who so desires, regardless of his preliminary education, can, after a few weeks in special courses or a few months' apprenticeship, set himself up as a doctor capable of caring for defects of the eye. This practice is in part a hold-over from the days when the jeweler sold glasses, but is largely due to organized groups who had the foresight to have their respective state legislatures pass

ing sufficiently to make protest, with the consequence that the group has grown into a large, well-organized minority, with sufficient capital to keep legislatures from repealing or amending laws not in their favor. In the face of this situation all one can hope for is to educate the public to distinguish between the fit and those not sufficiently equipped. It is the duty of every physician in this country to do his part in this educational campaign.

I am sure there are physicians who have been wearing glasses for thirty or forty years who have not yet found it necessary to consult one of his fellow practitioners who specializes in diseases of the eye. Such was true of an insurance executive who came into my office a few weeks ago. The history of the case is not an unusual one. The patient had been having his glasses fitted by an optician for ten years, during the past six months of which he had bought three pairs of expensive bifocal lenses. When he came to us, he was in the last stages of chronic simple glaucoma, hopelessly on the brink of spending the remainder of his life in blindness, probably needlessly. The one whom he consulted was not a doctor and thought that, since the patient's vision remained normal for distance, when he tested it on his reading chart, his only trouble was a lack of proper glasses and attempted to prescribe them. However, when we looked at his fundus and saw the glaucomatous cupping, we took a visual field and found that it subtended an arc of only five degrees at thirteen inches. In other words, he could see only what one could see if one looked through two hollow tubes thirteen inches long and one-fourth inch in diameter. To complicate matters, his intra-ocular tension was forty millimeters of mercury in each eye, high enough that any emotional shock, certainly the shock of any surgical procedure aimed at relieving his condition, in all probability would have hastened him into eternal darkness.

The question arises as to whether this patient could have been helped by an ophthalmologist if he had been seen when his troubles first began. My answer is "Yes." Every oculist knows that premature presbyopia, or the too early or rapid recession of the near point of accommodation, is the first clue to glaucoma. He would have ob-

---

\*Read before the Jefferson County Medical Society, Birmingham, Ala.

\*From the Department of Ophthalmology, Tulane University Graduate School of Medicine. laws that would permit them to practice. During this time, the medical profession sat idly by, apparently not knowing or car-

served the fundus for pathology and taken the intra-ocular tension and a visual field. Together, these would have confirmed the diagnosis in the case. He would have treated the patient medically—and here is where the general physician comes into the picture. He would have referred the patient to his family physician for a physical examination and a check-up on his living habits. With all physical defects and unfavorable habits corrected, if the glaucoma continued to be a progressing condition, an operation would have been resorted to in order to arrest the disease. And the general physician's fee and the fee of the ophthalmologist could have been met out of the sum the patient had paid for glasses during the time he was slowly but surely going blind.

Glaucoma is not the only eye disease that is insidious in its onset and progress and in which delay in proper treatment may mean permanent visual loss. Among others that I could mention are optic atrophy, retrobulbar neuritis, certain vascular lesions of the eye, diabetic changes, changes associated with kidney disorders and myopia, particularly of the progressive type. Myopia is that condition in which the axis, or the antero-posterior diameter of the eye, is longer than normal and rays of light reaching the eye are brought to a focus before they reach the retina, causing the patient to strain to see distant objects and unduly converge his eyes to see close objects. Once present, it usually remains and frequently progresses, especially when the patient, if a child, is not accurately fitted with glasses immediately; and fails to have foci of infection cleared up, errors in diet and elimination corrected, and imbalances in the function of the glands of internal secretion treated. All except the proper fitting of glasses is done by the family physician. What happens if this is not done? The eyeball stretches and becomes elongated. As these changes take place in the outer coats, the inner or nerve layers have to stretch also or give way. If they stretch, they usually retain their function but the child has to wear stronger and stronger myopic lenses as the defect progresses. This is the type patient to whom the eye physician can offer little hope that he will ever be able to go without his glasses and see efficiently. If the nerve layers fail to stretch, they will

atrophy or tear under the strain and that dreaded complication of myopia, retinal detachment, may occur. Its prognosis is worse than that of glaucoma, even when treated by surgical procedures. Most ophthalmologists treat myopia by correcting the error fully, both with complete spherical and astigmatic correction as found with the patient's eyes under the influence of a cycloplegic. Why can this not be done by a refracting optician? For the reason that he is not a physician and cannot use a cycloplegic without violating the medical practice act. Without the use of a cycloplegic one can no more measure the true error of refraction in the eye of a child or young adult than one can measure the length of a rubber band alternately stretched and relaxed; it is true one might guess the length of the rubber band, and so might the refracting optician guess the proper correction for some patient's eyes. Already, however, there are too many uncertainties in life without adding more and unnecessary ones, especially where your or my child's eyesight is involved.

A recent report from the National Society for the Prevention of Blindness shows that approximately three million school children in this country are suffering with defective vision. This includes only those who are enrolled in educational institutions; not those of preschool age who will appear with eye defects later on, nor recent graduates or ex-students who have managed to get through school in spite of their defects or have had to fall by the wayside because of them. Continuing the analysis to show the inadequacy of refracting opticians in caring for these patients, N. B. Harman reports in the *British Medical Journal* of October 1934 the findings of forty-seven ophthalmologists working through the National Ophthalmic Treatment Board throughout England. Over ten thousand cases were studied, 64% of which showed errors of refraction only; 29% showed errors of refraction complicated by one or more other eye conditions, and 6% showed some other eye derangement only. This is compared with the reports from sight-testing opticians who found that only 3% of the patients examined by them needed treatment other than glasses. Unfortunately no such statistics are available in this country, but from my own experience and that of other



ophthalmologists of my acquaintance I judge the same or even worse conditions prevail.

Inestimable good would come from closer cooperation between the general physician and ophthalmologist. Most of all it would mean a better medical service to the patient with eye defects, at practically no additional cost, since the ophthalmologist frequently keeps the patient from buying glasses that he does not need, or from buying an expensive or patented frame or mounting when a less expensive and equally efficient one will do. Further, he may be kept from buying an expensive pair of tinted lenses when they are not indicated. These savings frequently would more than pay the ophthalmologist for his examination.

It has been said, and is probably true, that, if all people with eye defects consulted ophthalmologists only, the present supply of ophthalmologists would be inadequate to take care of the patients. Is the answer, then, to send these patients to the non-medical eye practitioner? Decidedly, "No." You can no more educate in one year or five years a million or more people to consult only ophthalmologists than you could turn out well-trained ophthalmologists in the same length of time to care for them. I contend that the supply of ophthalmologists is ample to handle all patients at present; even if every physician in this country would get behind this educational campaign and insist that patients with eye disorders see only qualified medical practitioners. In 1934 there were enrolled 101 physicians in seven universities giving graduate courses in ophthalmology; and 88 residencies in ophthalmology were offered and filled by recognized hospitals in August of this year. Surely 189 added each year to those that we already have, who are not too busy to take care of additional patients, will keep the supply adequate to absorb each year the patients who are educated to consult only medical men about their eyes.

I want to make it clear that I have no fight with the optician. He is in an honorable and legitimate business that is as essential to the ophthalmologist as the druggist is to the general physician, but let him fill his role as an optical prescriptionist and not assume to be something that he is not.

## BIBLIOGRAPHY

1. Personal Communication from Dr. W. S. Cutter, Chicago.
2. Harman, N. B.: The Findings of Eye Examination, *Brit. M. J.* 2: 181, Oct. 6, Supplement 1934.
2. Emerson, Linn: The Fitting of Glasses a Surgical Procedure, *Guildcraft* Jan.-Feb. 1934, reprinted from *Jour. of the Med. Soc. of New Jersey*.

---

## MENINGOCOCCAL MENINGITIS

### TEN CASES TREATED WITH MENINGOCOCCIC ANTITOXIN WITHOUT A FATALITY

By  
W. A. CLYDE, B. S., M. D., F. A. A. P.  
And  
M. G. NEELY, A. B., M. D.  
Fairfield, Ala.

From January 1, 1936 to June 1, 1936, there were reported in the City of Birmingham and Jefferson County a total of twenty-one cases of epidemic cerebrospinal meningitis with eight deaths (a 38% mortality).

Ten of these twenty-one cases were given the meningococcic antitoxin developed by Dr. N. S. Ferry of the research department of Parke, Davis and Company—seven being treated in our hospital and three by Dr. J. L. Parsons of Ensley, Alabama. (These three cases were private patients of Dr. Parsons, but we include them in our report because he used the antitoxin at our suggestion and consulted us about their management.)

Of the remaining eleven cases, we do not know where or how or if they were treated. The eight deaths reported were from these eleven cases—a mortality of 72.7% if our ten who all recovered are excluded.

We are so favorably impressed by the rapid action and uniformly good results given by the antitoxin that, although this is a small series, we felt the cases should be reported.

In any outbreak of meningitis we realize that from year to year there is apt to be a difference in virulence. However, judging by the clinical picture presented by our patients and the high mortality rate in the other group we believed we were dealing with a very virulent form of meningococcus.

---

\*From the Pediatric Department of the Tennessee Coal, Iron and Railroad Company, Employees' Hospital.

## Case 1

(Treated on Adult Section by Drs. Walsh and Norton)

No. 95213—M. D. P., a white female, age 20 years. Admitted on March 7, 1936, twenty-four hours after onset. Temperature 100°, pulse 60, respiration 20. She was comatose on admission but previously had been irritable and complained of severe headache, nausea and vomiting. The neck was rigid, back muscles spastic, positive Kernig's. There were ecchymotic purplish spots on forearms and dorsum of hands. Leukocyte count 38,500 with 92% polymorphonuclear leucocytes. Spinal puncture on day of admission revealed a cloudy fluid under pressure of 24 mm., a cell count of 11,000 and positive smear for meningococci. (At this time 15 cc. of anti-meningococci serum were given intraspinally as we did not have the new antitoxin.) At 2:30 P. M. the same day 10,000 units (30 cc.) of meningococci antitoxin were given intravenously. The patient received a spinal puncture daily for six more days—5,000 units of antitoxin were given intraspinally and 5,000 intravenously each day. On March 13, 1936 the spinal fluid looked clear, had a cell count of only 170 and the smears were negative for organisms. This patient developed a severe urticaria and serum sickness on the eighth day which extended over a period of four days. She left the hospital on March 25, 1936, nineteen days from her admission. She had no apparent sequellae and seemed entirely well.

## Case 2

No. 95332—C. R. C.—White male, age 3 years. Admitted to hospital on March 14, 1936, forty-eight hours after onset. Temperature 103.6°, pulse 80, respiration 54. He had severe headache, projectile vomiting, pain in neck, was irritable, restless and semicomatose. There was marked opisthotonus, a ptosis of the right eyelid, right pupil dilated and fixed. Purpura on abdomen, forearms and legs. There was a choked disk on the right side. Blood pressure 120/56, leukocyte count 15,250. Spinal puncture on March 14, 1936 revealed cloudy fluid under pressure, cell count 22,000; smear was positive for meningococcus. Thirty cubic centimeters of fluid were withdrawn, and 7,500 units meningococci antitoxin given intraspinally. At this same time 20 cc. of 50% glucose were given intravenously with 3,000 units of meningococci antitoxin. Seven thousand units were given intramuscularly. Six hours later the blood pressure was 110/60, temperature 98.8°, right pupil beginning to react. At this time 10,000 units of meningococci antitoxin were given intravenously. On March 15, 1936, 10:00 A. M., spinal puncture was repeated—only 10 cc. of very cloudy fluid were obtained. Cell count over 50,000. 10,000 units of antitoxin were given intravenously at this time. (Patient received 37,500 units of meningococci antitoxin within first 24 hours.) On March 16, 1936, 10:00 A. M., spinal puncture—20 cc. fluid withdrawn; cell count only 3,150; smear positive. 3,000 units of antitoxin were given intraspinally and 7,000 intravenously. On March 17, 1936, spinal puncture—20 cc. spinal fluid removed; cell

count only 450, smear positive. 3,000 units of antitoxin were given intraspinally and 7,000 intravenously. On March 18, 1936—10,000 units of antitoxin were given intramuscularly. An urticaria developed at this time which appeared off and on for one week. Patient discharged from hospital March 29, 1936, apparently normal in every respect.

## Case 3

No. 95381—H. E. D.—Colored male, age 7 years. Admitted March 18, 1936 with complaint of headache, vertigo and stiffness of neck. Had chill 30 hours before admission. Opisthotonus marked, Kernig's positive, temperature 101.6°. Spinal puncture 2:30 P. M.—30 cc. of very cloudy fluid under pressure were withdrawn. Cell count 15,000. Smear positive for meningococci. 8,000 units of meningococci antitoxin were given intraspinally at this time; also 10,000 units antitoxin with 20 cc. of 50% glucose intravenously. On March 19, 1936, 9:30 A. M.—10,000 units of antitoxin were given intravenously. 5:00 P. M. spinal puncture—30 cc. of cloudy fluid obtained; cell count 18,000, smear positive—10,000 units of antitoxin given intraspinally. On March 20, 1936, 9:30 A. M.—10,000 units of antitoxin were given intravenously. 2:30 P. M. spinal puncture—20 cc. cloudy fluid were removed and 9,000 units antitoxin given intraspinally. Cell count on spinal fluid only 3,850 at this time. On March 21, 1936, 9:45 A. M.—10,000 units of antitoxin were given intravenously. 2:30 P. M. unable to get needle into lumbar spine so a cisterna puncture was done and 40 cc. of hazy fluid withdrawn with cell count of only 650. At this time 10,000 units of antitoxin were given intramuscularly. No serum sickness or urticaria developed and patient went home on March 28, 1936, ten days from time of admission, entirely well.

## Case 4

No. 95521—J. M. C.—White male, age 9 years. Admitted to hospital at 12:45 P. M. on March 27, 1936, thirty hours after onset. He had been comatose with intermittent convulsions for 6 hours prior to admission. Previously he had complained of severe headache and had vomited. On admission he was cyanotic and in deep coma. Had stiff neck, positive Kernig's and purpuric spots on abdomen and arms. Temperature 100.4°, blood pressure 128/74, leukocyte count 23,250. Spinal puncture revealed cloudy fluid under pressure—cell count 8,910. Smear positive for meningococcus. Thirty-five cubic centimeters of fluid were withdrawn and 10,000 units of antitoxin given intraspinally. At this same time 20,000 units of antitoxin were given intravenously with 20 cc. of 50% glucose. On March 28, 1936, 9:30 A. M.—10,000 units of antitoxin were given intravenously with 20 cc. of 50% glucose. 12:00 noon spinal puncture—65 cc. cloudy fluid withdrawn, 15,000 cell count. 10,000 units of antitoxin were given intraspinally. 6:30 P. M.—10,000 units of antitoxin were given intravenously. (A total of 50,000 units antitoxin within first 30 hours after treatment began—no marked improvement in clinical picture observed at this time.)

On March 29, 1936, 11:15 A. M.—Spinal punc-



ture, 50 cc. of cloudy fluid removed. Cell count 12,000. Ten thousand units of antitoxin were given intraspinally and 10,000 intravenously. On March 30, 1936, 12:30 P. M.—10,000 units of antitoxin were given intravenously; also spinal puncture performed. Ten cc. of fluid were obtained, with cell count down to only 650. (No antitoxin given intraspinally at this time.) At 6:00 P. M.—10,000 units of antitoxin were given intravenously. Patient much improved at this time.

On April 2, 1936 he had a marked urticaria and continued to have occasional urticaria for one week. This boy was discharged on April 8, 1936, twelve days from admission and seemed perfectly well. After going home he developed a generalized adenitis and had elevation of temperature for several days (apparently a definite serum sickness). He ultimately made a complete recovery.

#### Case 5

No. 95571—C. M., colored male, age 10 years, admitted on March 30, 1936, twenty-four hours after onset. Temperature 100°. Pulse 78. Respiration 28. He had complained of severe headache, pain in his neck and had been vomiting. He had marked opisthotonus, positive Kernig's, and was semicomatose.

(He was taken ill while attending his brother's funeral. The father stated that his brother had gone to bed complaining of headache and vomiting. He was given some "Liver Pills." The next morning he was found dead in bed. He evidently died of a fulminating type of meningitis.)

The patient received a spinal puncture about one hour after admission. The fluid was cloudy and under pressure. Smear positive for meningococci. Ten thousand units of meningococcic antitoxin were given intraspinally. Twenty thousand units were given intravenously with 20 cc. of 50 per cent glucose solution. On March 31, 1936, 9:45 A. M.—10,000 units of antitoxin were given intravenously.

2:30 P. M.—Cisterna puncture was done and 40 cc. of slightly blood tinged fluid removed. 10,000 units of antitoxin with 20 cc. of 50 per cent glucose were given intravenously. 4-1-36—Patient mentally clear and looked much improved. At 10:00 A. M. 10,000 units of antitoxin with 20 cc. of 50 per cent glucose were given intravenously. 1:00 P. M.—Lumbar puncture, 45 cc. of xanthochromic fluid drained off. Cell count 4,350. 4-2-36: 9:00 A. M. and at 5:00 P. M.—10,000 units of antitoxin were given intravenously with 20 cc of 50 per cent glucose. 4-3-36—10,000 units of antitoxin were given intravenously at 10:00 A. M.

On 4-5-36 a serum rash (or urticaria) developed. This persisted, off and on, for nine days. On 4-14-36 the patient left hospital entirely well.

#### Case 6

No. 95734—J. W. B., colored male, age 15 months, admitted 4-11-36 at 4:40 P. M. desperately ill, comatose, left eye turned inward to nose and fixed, neck and back muscles rigid, respiration labored, temperature 103°, leukocyte count 12,000, blood pressure 86. Spinal puncture revealed a cloudy fluid under marked pressure. 50 cc. of fluid withdrawn and 10,000 units of antitoxin

given intraspinally. The smear was positive for meningocci. 10,000 units of antitoxin with 20 cc. of 50 per cent glucose were given intravenously.

4-12-36—At 10:00 A. M. and 6:00 P. M. the child received 10,000 units of antitoxin with 20 cc. of 50 per cent glucose. 4-13-36—The same procedure as on 4-12-36 (20,000 units). In addition a spinal tap was done and 45 cc. of spinal fluid withdrawn. Cell count 1,000. Smear still positive. On 4-14-36 and 4-15-36 only one dose of 10,000 units of antitoxin was given intravenously each morning.

On 4-16-36—Spinal puncture; fluid clear, cell count 22 and smears negative. On 4-17-36 an urticaria developed, very mild, and cleared up in 48 hours. Patient was discharged on 4-21-36, ten days after admission. The eyes were straight and she appeared entirely normal in every respect.

#### Case 7

No. 96306—Wm. D. C., colored male, age 4 years, admitted 5-15-36, five days after onset. He had been treated with quinine for 4 days because of history of estive-autumnal malaria the preceding summer. His symptoms were chills, fever, vomiting and headache. The parents noticed that he seemed deaf for 4 days and thought this due to the quinine.

On admission he was semicomatose and very restless; the neck and back muscles were rigid. There was marked dehydration. Temperature was 102°. Blood pressure 94/60. Pulse slow and full. Leukocyte count 16,500. 2:00 P. M.: Spinal puncture; 30 cc. of cloudy fluid removed. Cell count 4,350. Smear positive for meningococci. 6,000 units of antitoxin were given intraspinally. 10,000 units were given intravenously; and 300 cc. of 5 per cent glucose in normal saline by venoclysis.

8:00 P. M.—10,000 units of antitoxin were given intravenously. 5-16-36: 10:00 A. M.—10,000 units of antitoxin with 20 cc. of 50 per cent glucose were given intravenously. 2:00 P. M.: Lumbar puncture; 50 cc. of cloudy spinal fluid withdrawn, cell count 3,750. 7:00 P. M.: 10,000 units of antitoxin with 20 cc. of 50% glucose given intravenously.

5-17-36: 10:00 A. M.—10,000 units of antitoxin with 20 cc. of 50% glucose given intravenously. 1:00 P. M.: Spinal puncture; 40 cc. of slightly cloudy fluid removed, cell count 1,200. Smear negative for organisms. 5-18-36: 10:00 A. M.—10,000 units of antitoxin given intravenously with 20 cc. 50% glucose. 5-21-36: Patient developed a mild urticaria. 5-31-36: Patient sent home. He was completely deaf and walked with legs far apart and a somewhat ataxic gait. (Has been seen in clinic for past two months and is still deaf but walks much better.)

#### Cases 8, 9, 10

Dr. Parson's three cases all were colored males, all had positive smears for meningococci in the spinal fluid. He gave each of them 10,000 units of antitoxin daily for 5 days, 5,000 units intraspinally and 5,000 units intravenously. The first case was 1 year of age, second case 6 years, and third case 9 years. All recovered completely except that the year-old infant had a retinitis of the right eye for about 2 months. The third case is

still partially deaf. Only one case had serum sickness.

#### DISCUSSION

In addition to spinal drainage and the administration of antitoxin, there are a few other aids in the treatment of meningitis:

(1) Glucose by vein in hypertonic solution often quiets a restless patient and seems to improve both respiration and circulation, besides providing some nourishment in a form which can be utilized at once.

(2) Other sedation, such as chloralate, luminal, nembutal or amytal, and, in older patients, codeine and morphine should be used often enough to keep the patient relaxed.

(3) Often these patients are unable to void. A distended bladder should be watched out for and catheter used if necessary.

(4) Nasal tube feeding is practically always necessary in infants and very young children and can be used to advantage even in adults.

(5) About 60% of our cases had a very foul mouth condition—gingivitis and stomatitis. For this we used mercurochrome, 30% solution, once daily and a sodium perborate mouth wash three times daily.

Our last four cases received less antitoxin intraspinaly and more intravenously. The last two cases were only given one dose intraspinaly. We plan in the future to give all of the antitoxin intravenously and tap the spinal canal for drainage and relief of pressure when indicated. We feel that if the patient looks clinically well that spinal punctures may be discontinued when the smear is negative even if the cell count is still 500 or more, if there are no signs of increased intracranial pressure.

#### SUMMARY

During the past ten years we have treated sixty-five cases of meningococcic meningitis by the old method of antimeningococcic serum intraspinaly. We had fairly good results in 1931 and 1932 but our average mortality for the ten-year group was 52%. This year we have not lost a case since using the meningococcic antitoxin and we are beginning to have almost as much faith in it as we have in diphtheria antitoxin.

Dr. Archibald Hoyne in 1934-1935 treated 313 cases of meningococcic meningitis at the Cook County Hospital, Chicago. 211 cases treated with the old serum had a mortality of 45.9%. 102 cases treated with the new antitoxin had a mortality of 20.5%. The last 17 cases he treated were given more antitoxin intravenously and he lost only one of the seventeen cases. He also was able to cure several patients who were not responding to the serum by changing to antitoxin.

Our patients were given an average of 50,000 units (240 cc.) of the antitoxin. They spent an average of only 13.7 days in the hospital. Only two of the ten had any permanent disability—one being totally deaf with some disturbance of equilibrium, the other partially deaf.

We had not a single case of anaphylactic shock from the antitoxin. Seven cases had a well marked urticaria and mild serum sickness. Three had no reactions whatever.

Dr. H. S. Banks of London states that the antitoxin or the serum loses its potency in the average hospital refrigerator in six months. A fresh potent antitoxin should be used.

We have on hand now two cases who are recovering rapidly—a Negro man, age 21 years, and a Negro boy, age 11 years. They are receiving antitoxin by the intravenous route only. These cases and others will be reported at a later date.

#### BIBLIOGRAPHY

1. Archibald L. Hoyne. J. A. M. A. 104: 980-983 (March 23) 1935.
2. H. S. Banks. The Lancet 1:856-858 (April 13) 1935.

---

**Public Health Values**—In the periodic appraisal of health work based on accurate and complete records the health administrator has the most sensitive instrument for determining the degree to which the community has bestirred itself to protect and advance communal health. Such an appraisal should serve as a tool which is useful not only to the health administrator in the evaluation of the relative worth of the various activities of his own program and the integration of all the health and social welfare forces of the community, but also as a basis for the securing of adequate financial and moral support.—*Chimene, Texas State J. Med., Dec., '36.*



## APPENDICITIS\*

### A SERIES OF CASES

By  
J. P. COLLIER, M. D.,  
Tuscaloosa, Ala.

When asked to appear before this Association, it was left to the essayist to select his theme. While turning the matter over in his mind, many different subjects presented. He thought of unusual and rare cases seen and worth reporting, new surgical technics that might be discussed, and academic and theoretical questions that might be of interest. However, knowing that this body is composed of practical clinical physicians and surgeons, he thought that a presentation dealing with a condition seen nearly every day would be more appropriate; therefore, appendicitis was chosen. This was mentioned to a colleague who said that appendicitis had been discussed so often and so thoroughly that apology should be made for bringing up the subject again. This would have been offered but for an editorial appearing in the *Journal of the American Medical Association* under date of June 20, 1936, which emphasizes the need for a continuing interest in the disease.

This editorial was entitled, "Reducing the Mortality of Acute Appendicitis." If time permitted, the entire editorial would be read to you, but we shall have to be content with a brief quotation from it.

"Vital statistics of the United States place the mortality rate for acute appendicitis at 9 for each hundred thousand of population for the year 1920 and at 15 per hundred thousand for the year 1932. The Metropolitan Life Insurance statistics indicate that the mortality rate for acute appendicitis rose from 10.6 per hundred thousand for the period from 1911 to 1914 inclusive to 14.1 for the period from 1927 to 1930 inclusive . . .

"The factors contributing to the mortality of acute appendicitis include the age and sex of the patient, administration of cathartics before the operation, and delayed operation, as well as the skill and the judgment of the surgeon. Age is the most important single factor. The high mortality in the young is due to the greater virulence of the infection, to a tendency to early perforation, and to a faster spread of the pathologic alterations. Diagnostic difficulties resulting in delayed operation, and the more frequent recourse to cathartics combine to give a mortality rate of 20 per cent in children under the age of 3 years. The

high mortality rate past middle life is due principally to diagnostic errors caused by the frequency of atypical forms, owing to a less vigorous reaction on the part of the organism . . .

"There is a general agreement supported by statistical studies that the administration of cathartics seriously affects the situation.

"The merits of the early operation are too well established to require reiteration . . . Appreciation of the fact that one must not expect to find all the five cardinal symptoms (pain, localized tenderness, muscle spasm, rise in temperature and leukocytosis) in every case and adherence to the principle of early operation will undoubtedly reduce this mortality still further.

"As soon as perforation has taken place, the problem of care in appendicitis becomes tremendously complicated as to both the estimation of the existing pathologic changes and the question of operative intervention . . .

"The controversy as to what to do with the patient who has a palpable swelling is less acute . . . It is capable of a complete resolution without forming an abscess. An increase in the size of the swelling, pain, chills, rise in temperature and leukocytes, and at times fluctuation established the existence of an abscess. Watchful expectancy and intervention only when an abscess is not being absorbed is advocated by some. The more radical view is to operate regardless of the presence of a palpable swelling or the fact that it is regressing, the emphasis being placed on the removal of the appendix. An intermediate position is occupied by those who would operate in the presence of an inflammatory swelling or an early abscess, but who would wait for encapsulation in the case of a late abscess. They would further limit the procedure to an incision and drainage of the abscess without any attempt at the removal of the appendix. The objection to the policy of waiting is the possibility of a sudden rupture of the abscess leading to a most dangerous form of peritonitis . . .

"Lowering the mortality rate of acute appendicitis may follow education of the general practitioner to recognize the atypical forms, strict adherence to the principle of early operation, education of the public to abstain from the use of cathartics in the presence of abdominal pain, and responsibility for the neglected cases by the experienced surgeon rather than by the casual operator."

From the first paragraph of the editorial it can be seen that, in spite of our modern knowledge, the mortality of appendicitis is increasing instead of decreasing as it should. Of course, many explanations can be given to account for this increase, but the fact still remains that, regardless of explanations, too many people are dying from this condition. Because of this increasing mortality rate we think that another paper on the subject would not be out of place. We hope it will cause discussion enough to be of value to all present.

\*Read before the Chattahoochee Valley Medical Association, Radium Springs, Ga., July 14, 1936.

For the past several years we have had the opportunity, as Chief Resident Surgeon of one of the largest charity hospitals\* in the South, to observe several thousand cases of appendicitis in all of its forms. We assisted with the diagnosis and treatment of these cases under the direction of about fifty different surgeons. In this capacity it was also our duty to read and approve the hospital charts of these patients. It was while doing this that we again became conscious of the high mortality of appendicitis, especially in its complicated forms. From the observations made on this large group of cases, from reviewing their hospital records, and from personal cases, we have reached certain conclusions concerning appendicitis and shall present them to you. Most of our conclusions agree with the generally accepted ones but some do not.

Since it is impossible to give a complete analysis of all these cases, a series of 132 personal ones have been selected to illustrate our conclusions. The cases are consecutive and cover the period from July 1, 1932 through July 1, 1934. None occurring in the two-year period has been omitted for any reason.

#### TYPES OF APPENDICITIS

The 132 cases are grouped clinically and pathologically as follows:

|   |            |
|---|------------|
| Chronic recurrent appendicitis .....                      | 10         |
| Acute appendicitis .....                                  | 79         |
| Acute appendicitis with abscess .....                     | 15         |
| Acute appendicitis with perforation and peritonitis ..... | 28         |
| <b>Total .....</b>  | <b>132</b> |

#### MORTALITY RATES

There were 6 deaths in the series of 132 cases—a mortality of 4.61%. In the 10 cases of chronic recurrent appendicitis there were no deaths. In the 79 cases of acute appendicitis there occurred one death. This gives a mortality of 1.26% in the acute uncomplicated cases. Of the 28 cases with perforation, three died, giving a mortality of 10.91% for this group. Of the 15 abscess cases, 2 died—a mortality of 13.3%. Two of these deaths, one in the acute group and one in the perforated group, were due to pneumonia, but the other four deaths were the direct result of

the appendiceal lesions. Further observations on this mortality will be given later in the discussion.

#### AGE, RACE AND SEX

The youngest patient in the series was a little less than 3 years of age and the oldest 61 years old. The average age of the entire group was 22.9 years. The ages can be expressed as follows:

|                    |            |
|--------------------|------------|
| 1-10 years .....   | 10 cases   |
| 10-20 years .....  | 48 cases   |
| 20-30 years .....  | 46 cases   |
| 30-40 years .....  | 18 cases   |
| 40-50 years .....  | 7 cases    |
| 50-60 years .....  | 1 case     |
| 60 over .....      | 2 cases    |
| <b>Total .....</b> | <b>132</b> |

This table bears out the statistics of most observers that appendicitis can and does occur at all ages but that the disease is more prevalent in the 2nd and 3rd decades of life.

There were 79 male and 53 female patients. Eighty nine (89) of the patients were of the white race and 43 were Negroes. The white cases were divided into 50 males and 39 females. The Negro cases had 27 males and 16 females.

These figures compare favorably with most observations. They show the prevalence of the disease in the white race and the male sex. The percentage of colored females with appendicitis should be noted especially. Most observations do not give such a large per cent. We feel that many cases of appendicitis in colored females are overlooked because of the prevalence of acute pelvic conditions in this race.

#### SYMPTOMS

The symptoms in these cases varied as to duration from a few hours to several days. Some of the perforated cases had had symptoms for a short period only, whereas some of the milder cases had been ill for a number of days. This observation shows that we cannot foretell the final outcome of appendicitis and gives us warning not to temporize with any type of the disease.

Pain in the abdomen was complained of in all of the cases. Ninety-four (94) of the patients had pain first in the epigastric

\*Hillman Hospital, Birmingham, Ala.



and umbilical region, radiating later to the right lower quadrant. The remaining 38 had pain in the right lower quadrant only. The pain was moderately severe and continuous.

Nausea occurred in 120 of the cases and vomiting was noted in 101 cases. Twelve (12) of the patients had no definite gastric symptoms. Most of them complained of constipation but a certain number had a definite diarrhea even before any purgative was taken.

Fifty-nine (59) of the patients had taken purgatives after the onset of symptoms. The other 73 took no purgatives but some had enemas. Of the 28 cases of acute appendicitis with perforation, 23 took either castor oil or magnesium sulphate or both. Of the 15 abscess cases, 13 took some kind of strong purgative. The other 23 patients who took purgatives had no complications. We believe this to be due to the fact that most of them vomited the purgative or were operated upon before the purgative reached the large intestine. These figures concerning purgation agree with all writers on the subject. It is our duty as physicians to spread this information to as many people as possible.

A history of previous attacks similar to the present was procured in 56 out of the 132 cases. Most of these had had several attacks before. Since appendicitis tends to recur after one attack, as long as the appendix is still in the abdomen, we believe the appendix should be removed with the first attack. Several sad cases of the following type have been seen by us:

A patient had a definite mild attack of appendicitis and came to the hospital. Because the attack was not severe an ice bag was applied to the abdomen and the patient recovered within a few days and went home. A few months later an attack similar to the previous one began. The patient, having gone to the hospital during the first attack, only to have an ice bag applied, decided to remain at home and use an ice bag this time. Several days later the patient was brought to the hospital with a ruptured appendix, death ensuing. After seeing several cases of this type, it has been our practice to advise and insist upon an appendectomy in all instances, regardless of how mild the case may appear.

#### PHYSICAL EXAMINATION

Physical findings in this series of cases were in most cases fairly typical but were quite misleading in others. Since a number of these patients were seen late and the abdomen was quite tender and distended, one had to depend largely on the early history of the case in order to arrive at an exact diagnosis. It is our practice to arrive at a diagnosis of an acute surgical abdomen first, and then localize the lesion.

All of the patients in this series had some tenderness over the appendiceal region. This tenderness varied in severity. One hundred two (102) had definite rigidity to some degree over the right lower quadrant, while rigidity was more widespread in the perforated cases. A mass could be felt in the right lower quadrant in 19 cases. Rebound tenderness in the right lower quadrant from pressure in the left side was present in 62 of the patients. This latter finding is quite important in the diagnosis.

The average temperature in this group of cases was 99.68°. Several cases had subnormal temperatures while the highest temperature recorded was 103°.

The average pulse rate for the series was 95.1 per minute. The pulse varied from 66 to 132 and was not of much diagnostic help.

The leukocyte count in the group averaged 13,250 per cu. mm. The lowest count in the acute cases was 7,100 and the highest was 32,000. Several of the severest cases had quite low counts and some of the milder cases had high counts. It is our practice to make the diagnosis and plan the treatment from the clinical findings and depend very little on the blood count. A count, however, is always made for record.

#### TREATMENT

In taking up the treatment of this series of cases, we shall tell first what was done, and later, under the different types of appendicitis, discuss the treatment more in detail. The treatment in all of these cases was operative as soon as the diagnosis was made. Except for a very few of the early cases, appendectomy was done in all instances.

General anesthesia was used in 124 patients, 91 being given ether and 33 nitrous oxide. Spinal anesthesia was used in 6 cases

and local anesthesia in 2. The choice of the anesthetic was usually dependent upon the method available at operating time and upon the patient's condition.

A small McBurney or Davis gridiron incision was used in 106 cases; right rectus incision in 21; and lower midline incision in 5. The right rectus incisions were used in the cases of chronic appendicitis in order that an abdominal exploration could be made more easily. The midline incisions were made on female patients where pelvic pathology could not be definitely ruled out before operation.

Drainage was used in 49 cases. These cases included the 43 perforated and abscess cases and 6 cases in which oozing of blood was excessive.

The average time of all the operations was 30.3 minutes. The time of operations varied from 10 to 68 minutes.

#### DISCUSSION OF GROUPS

In the chronic recurrent appendicitis group a very thorough study, including x-ray and laboratory examinations, was made. As soon as a fairly adequate diagnosis was arrived at, the patients were subjected to an abdominal exploration through a right rectus incision. If no other pathologic lesions were found, the appendix was removed. There can be little discussion as to the care of these patients provided the pathology is present.

In the acute appendicitis group, immediate operation was performed as soon as the diagnosis was made, and an appendectomy was done and the abdomen closed without drainage. Drains were used in 6 of the cases in this series because of excessive oozing of blood. These drains were removed within 12-24 hours. There can be little debate that this group of cases was handled correctly. It seems to us that the treatment of this group, immediate appendectomy, should be adopted for all types of appendicitis.

In the group of acute perforated appendicitis an immediate operation with appendectomy was done in all cases. Three of this group died, giving a mortality rate of 10.91%. This experience agrees favorably with most reports which vary from 15% to 60%.

There is plenty of room for argument in the handling of this type case. Some sur-

geons would delay operation hoping for the process to become localized and walled off. These same surgeons would urge immediate operation in other perforated lesions in the intestinal tract, and we personally cannot see why the perforated appendix should be singled out to be left alone. The question of drainage in these cases is now undergoing quite an extensive discussion, but we shall not attempt to comment on this matter except to say that at the present time drainage is the accepted procedure.

Cases of appendiceal abscess have always been a subject of much argument and differences of opinion. The controversy as to what to do with the patient who has a palpable mass is not quite as acute as the perforated case but is a very serious matter and will certainly tax surgical judgment. Watchful expectancy and intervention, only when the abscess is not being absorbed, are advocated by some. Surgical intervention then consists only in draining the abscess and leaving the appendix in place. We were taught to follow the latter method and practiced it for some time, but in the past few years we have changed to the so-called radical group who advocate immediate operation with removal of the appendix if possible. Our reasons for adopting this latter method of treatment came about in the following way:

In checking the hospital records of the appendicitis cases we frequently came across cases of appendiceal abscess which had been drained without removal of the appendix. Some of these patients died and the rest remained in the hospital for weeks and months draining. In the daily census of the hospital there were always a number of draining sinuses from these appendiceal abscesses. These cases averaged one of the largest number of hospital days. All such cases were advised, when they finally left the hospital, to return at an interval of three to six months for appendectomy. The majority of them did not return until they had suffered another attack and then returned with another abscess. We recall one small boy who had four appendiceal abscesses in 18 months. This has happened so many times that at present most of the patients are kept in the hospital until their appendices are removed. Those who were discharged and returned for an internal operation usually had to be drained after a



difficult secondary appendectomy, because of the bleeding from adhesions, and the second hospital stay was quite long also.

After seeing so many of these cases, we talked the matter over with several prominent surgeons and read many reports concerning the handling of such cases. It was found that the mortality experience of the so-called radical group was as good as that of the so-called conservative group—in many ways better. We then reviewed a number of such cases including the cases of abscess which form the first part of this series. In this series, 8 cases had been opened and drained. Two of these had died, giving an extremely high mortality. The average stay in the hospital was 39.9 days, including the two patients who died within a few days. The surviving ones were discharged from the hospital with instructions to return for appendectomy. One returned with a second abscess and at that time his appendix was removed immediately. Later the remainder returned for their appendectomies. At the present, no patient of ours who has been operated upon for an appendicitis of any kind has an appendix in his abdomen. The second operations on the cases were technically difficult because of the many adhesions and scarring and most of them had to be drained.

Since reviewing these latter cases, we have operated upon many cases of appendiceal abscess. Whereas in the early case operation was designed "to drain an abscess," in the latter cases we operated for an appendicitis with the intent of doing an appendectomy if possible.

The last seven abscess cases of this series were treated in the latter manner. None died and all were discharged from the hospital as cured. Besides lowering the mortality, the hospital stay was lowered from 39.9 days to 28.7 days. These patients did not face the chances of another attack nor did they have to return to the hospital for another operation and hospital stay.

There are several arguments put up by those who advocate drainage with as little manipulation as possible. The first is the danger of tearing down the protective inflammatory tissue and spreading the infection. In a great number of cases we have never seen this happen. In the first place, most of the appendices can be removed without disturbing the general cavity; and, in

the second place, this area of the peritoneal cavity is usually fairly well vaccinated against the type of infection which is present. It was surprising to us how easy the removal of the appendix was in the first few cases of this type in which we attempted to do so.

Another point that is used against removing the appendix in abscess cases is the length of time required. The average time for operation of this entire series was 30.3 minutes. In the cases that were drained, the time was 22 minutes and in the cases of abscess in which the appendix was removed it required 35 minutes.

Our argument for immediate removal of the appendix in all cases of appendicitis is a lowered mortality rate and a quicker convalescence.

#### COMMENT

It is believed that from the review of this small series, which was used merely as an example, the points that we wish to present have been fairly well made. We desire to remind you again that all of the conclusions were not based solely on these few cases, but on several thousand observations on many other cases.

#### CONCLUSIONS

1. Although surgery is advancing, the mortality rate of our most prevalent abdominal condition, appendicitis, is increasing.
2. Early diagnosis will help to decrease the mortality. In making an early diagnosis, both typical and atypical cases should be looked for. These latter are the ones in which the mortality is so high.
3. Education of lay people and physicians, that purgation is one of the worst things in abdominal pain, will also help to lower the death rate.
4. The treatment of appendicitis is immediate operation, with removal of the appendix if possible. When a case of appendicitis is seen, regardless of type, it is to be approached with an open mind, prepared to operate with a view of removing the pathologic lesion, if possible to do so without harm to the patient.

---

---

NEXT MEETING

BIRMINGHAM

APRIL 20-22, 1937

---

THE JOURNAL  
OF THE  
Medical Association of the State of Alabama

Editor-in-Chief

FRED W. WILKERSON.....Montgomery

Associate Editors

M. Y. DABNEY.....Birmingham  
W. D. PARTLOW.....Tuscaloosa  
J. N. BAKER.....Montgomery  
DOUGLAS L. CANNON.....Montgomery

Please send in promptly notice of change of address, giving both old and new; always state whether the change is temporary or permanent.

Office of Publication

519 Dexter Avenue.....Montgomery, Ala.

Subscription Price.....\$3.00 Per Year

January 1937

DEATH CLAIMS DR. KIRKPATRICK

It is difficult always to record the passing of a friend, even though to such one may have been granted the scriptural allotment of three-score years and ten. Such is our feeling, however, in attempting to refer to Dr. Samuel Kirkpatrick, who died in his beloved Selma on January 6th. President of the Association in 1933, a member of the Association's Committee on Public Relations, an Active Counsellor from the Fourth Congressional District, and Chairman of his County Board of Health, Dr. Kirkpatrick served the Association capably and unselfishly, seeing through an acute eye many of the problems yet to be solved by organized medicine and public health.

To his family, the Association, through its Secretary, and the central administration of the State Department of Health, through the State Health Officer, have expressed deepest sympathy in the loss of this outstanding member and always willing worker of the Association.

CINCHOPHEN AGAIN

"In this paper we shall attempt to answer the question 'Can cinchophen be given safely if given carefully?' The question itself implies that cinchophen is a danger-

ous drug." Thus do Palmer and Woodall<sup>1</sup> state the case in their recent inquiry into the dangers attendant upon the administration of phenylcinchoninic acid, or cinchophen, which is sold under many other names also.

They admit that the vast majority of patients are able to take cinchophen over long periods of time without apparent injury and they quote several observers who doubt that it causes jaundice and liver damage. But they also state that in the past decade there have been reported 191 cases of jaundice following the administration of this drug, with eighty-eight deaths and many fatal cases, they believe, have not been reported and they quote the Council on Pharmacy and Chemistry as holding that "physicians should be educated in the use of this dangerous drug, as in the case of other dangerous drugs."

The authors further state that "it is apparent that cinchophen is not a drug like digitalis or ergot or emetine, which is toxic only in large doses and which, when used in small doses, gives adequate warning of toxicity. It is, on the contrary, a drug that may be fatally toxic even in very small doses. The necrotic changes in the liver may progress to death even when the first symptoms do not appear until several weeks or months after the administration of cinchophen. The very earliest symptoms may be only a signal, already too late, that the steady march of death has begun." And finally "it is therefore concluded that there is no safe method for the administration of cinchophen."

For more than a decade now the literature has contained an increasing number of articles pointing out the fact that, for some individuals, cinchophen is hepatotoxic. And yet physicians continue to prescribe it with a recklessness that should give us pause and many pharmaceutical houses continue to supply it under highly deceptive trade names. Much must be learned before the real status of phenylcinchoninic acid can be fully determined, but meanwhile many lives will undoubtedly be saved if both practitioners and the great drug houses can be convinced that cinchophen is not infrequently a lethal drug.

1. Palmer, Walter L., and Woodall, Paul S.: Cinchophen: Is there a safe method of administration? J. A. M. A. 107: 760 (Sept. 5) 1936.



## THE ASSOCIATION FORUM

*(Under this heading will appear, from time to time, as occasion may arise, contributions having a direct bearing on the general policies, functions and interests of the Association. Articles submitted should be of an impersonal nature.)*

### THE PHYSICIAN'S INTEREST IN THE SOCIAL SECURITY ACT\*

#### INTRODUCTORY

The Social Security Act was enacted into law by the Seventy-Fourth Federal Congress and approved by the President on August 14th, 1935. It may truthfully be said that within the scope of this one Act is encompassed legislation affecting our entire social structure; indeed so far-reaching, and portentous is it that no individual, nor group, nor segment of society should neglect to cultivate some sort of familiarity with its provisions and its implications.

The preamble of this Act reads as follows:

"To provide for the general welfare by establishing a system of federal old-age benefits, and by enabling the several states to make more adequate provision for aged persons, dependent and crippled children, maternal and child welfare, public health, and the administration of their unemployment compensation laws; to establish a Social Security Board; to raise revenue; and for other purposes."

The Act is divided into ten main headings known as "Titles" and under the several "Titles" appears the legislative machinery for dealing with the diversified problems embraced in the Act. Two of these "Titles," Title V, which provides grants to states for maternal and child welfare, and Title VI, which provides grants to states for public health work, should be of particular and direct concern to the entire medical profession.

Effort is made below to give a brief synopsis and analysis of the Act as a whole, so that the reader may gain a better and more workable understanding of its entire scope. For purposes of simplicity and clarity, consideration will be given to the Act under three broad headings, with heading (3) being devoted to Titles V and VI which, as stated above, deal with topics of prime concern to the medical profession.

\*Contributed by Dr. S. Kirkpatrick of the Association's Committee on Public Relations shortly before his illness which terminated fatally on January 6, 1937.

Following upon the analysis, the Committee on Public Relations, has presented certain comments both on the Act as a whole and on certain of its specific provisions, in so far as their implications would seem to have a direct bearing on the profession. It will be understood, of course, that the views therein expressed, while designed to be helpful to the members of the Association, in no sense are to be construed as binding upon the Association.

#### A SYNOPSIS OF THE ACT

The Federal Social Security Act<sup>1</sup> was designed to provide "security against the hazards and vicissitudes of life; to safeguard against misfortunes which cannot be wholly eliminated in this man-made world of ours."<sup>2</sup>

To attain this end the Act contemplates, under conditions which it sets forth,

(1) the payment of (a) compensation, in the indefinite future, to a limited class of unemployed workers during a limited period of unemployment and (b) annuities, after January 1, 1942, to a limited class of workers who have attained the age of 65 or more;

(2) immediate annual grants by the Federal Government to aid the several states in providing cash gratuities to (a) the needy aged, (b) needy dependent children, and (c) needy individuals who are blind; and

(3) grants by the Federal Government to aid the several states in furnishing (a) public health services, (b) services for promoting the health of mothers and children, (c) services for the medical, surgical and hospital treatment and care of crippled children, (d) child welfare services, and (e) programs for vocational rehabilitation.

A brief consideration of the whole Act, it is believed, will be helpful in the formulation of any judgment with respect to the so-called medical provisions of the Act.

#### I. UNEMPLOYMENT COMPENSATION AND OLD AGE ANNUITIES

Unemployment Compensation. — Titles III and IX of the Act are designed to provide compensation for a limited class of

1. Public No. 271, 74th Congress, approved August 14, 1935.

2. From President Roosevelt's message to Congress, June 8, 1934.

unemployed workers during limited periods of unemployment, payments to be made according to unemployment compensation laws to be enacted by the several states, which must conform to a pattern set out in the Act and must be approved by the Social Security Board. The several states must accept that pattern and resultant federal control if they are to benefit from federal largess and are not to be penalized by payments made into the federal treasury by employers in those states.

Unfortunately, however, compensation payments are not to be available to all workers. Certain numerically important classes of workers are not embraced in the Act, the most important classes being (1) those engaged in agricultural pursuits, (2) domestic servants, (3) those in the employ of an employer of less than eight workers, (4) those employed by a corporation, fund or foundation organized and operated exclusively for religious, charitable, scientific, literary or educational purposes, or for the prevention of cruelty to children or animals, no part of the net earnings of which inures to the benefit of any private shareholder or individual, and (5) those in the employ of the United States Government, of a state government, or of an instrumentality of either.

Estimates concerning the number of workers not embraced in the Act vary, but conservatively, it would seem that the Act will apply even in so-called industrial states to no more than 50 per cent of the workers in those states, if it will apply to that many.<sup>3</sup>

The payment of compensation to eligible unemployed workers is to be financed by a payroll tax imposed on employers of eight or more workers covered by the Act. This tax is to amount to 3 per cent of the payroll for employment after December 31, 1937. For employment during 1936 and 1937 the payroll tax is to be 1 per cent and 2 per cent, respectively.

3. An editorial appearing in the Chicago Daily Tribune, August 5, 1936, has the following to say on this point: "Although in such an industrial state as Illinois the Social Security Board can estimate that 51 per cent of gainful workers would have a limited protection, in Mississippi only 20 per cent would have this benefit, and in Alabama only 30 per cent. The agricultural states would have their social problem comparatively uncovered and many occupations and businesses would be entirely outside the whole scheme."

An employer in a state having a state unemployment compensation law approved by the Social Security Board may credit against up to 90 per cent of the federal payroll tax for which he is liable the payments made under the state law. If a particular state has no unemployment law, or one which is not approved by the Social Security Board, the employer is subject to the payroll tax in its entirety and his workers receive no benefits whatsoever from the tax paid to the Federal Government. Obviously, these considerations will compel all states to adopt unemployment compensation laws approved by the Federal Government.<sup>4</sup>

Old Age Annuities.—Title II and VIII of the Act are designed to afford, after January 1, 1942, annuities of from \$10 to \$85 monthly to a limited class of workers after they reach the age of 65. These benefits are to be available generally only to the type of worker eligible for the unemployment compensation benefits just discussed, except that the benefits are not limited to workers employed by employers employing eight or more individuals but apply even though an employer affected by the Act employs but one person. Not more than 50 per cent of the nation's workers who attain the age of 65, if the percentage is that large, will be entitled to any of the contemplated benefits.

No state cooperation with the Federal Government is called for in connection with these provisions.

These benefits will be financed by another set of payroll taxes distinct and in addition to the payroll tax discussed above in connection with unemployment compensation. The payroll taxes to finance the old age annuities are imposed on both employer and workers in the employments

4. As is said in a report given to the Section of Insurance Law of the American Bar Association at the annual meeting of that Association in Boston, August 24-28, 1936, by the Special Committee on Social Security and Unemployment Insurance Law: "The plan requires every state to relinquish its sovereignty and adopt a law of federal dictation. No choice is open; if the state refuses to be coerced, its citizens are subject to an onerous tax without resulting benefit. The object and effect of this Act can only be the destruction of the sovereignty of the states and the rights of their citizens; and it is clearly transgresses the limits of Congressional power."



covered, amounting in each case to 3 per cent of the wages paid and received in employment after December 31, 1948. Prior to that date the rate varies, being one-half per cent in employment after December 31, 1936 and increasing one-half per cent every fourth year thereafter until the maximum of 3 per cent is reached in 1949. Any remuneration received by an affected worker in excess of \$3,000 annually, however, will not be subject to tax.

#### II. GRANTS IN AID FOR CASH GRATUITIES FOR STATED TYPES OF INDIGENTS

**Needy Aged Persons.** To enable "each state to furnish financial assistance . . . to aged needy individuals," Title I of the Act authorizes the annual appropriation by Congress of "a sum sufficient to carry out the purpose" of the title, to states having state plans for old-age assistance approved by the Social Security Board. For the five months ending June 30, 1936, only 26 states and the District of Columbia had state plans approved by the Board; yet \$24,660,000 was made available for allotments to those states and the District.

The Federal Government will contribute no more than \$15.00 monthly to be distributed to any one needy aged person. Since a favored state must match the federal allotment dollar for dollar, a needy aged person can receive \$30.00 monthly.

**Needy Dependent Children.**—Title IV of the Act authorizes an annual appropriation by Congress of \$24,750,000 for allotments to the several states by the Social Security Board to enable "each state to furnish financial assistance . . . to needy dependent children." A state to be eligible for these funds must have a state plan approved by the Social Security Board. For every one dollar of federal funds allotted, a state must utilize \$2 of its own funds. The Federal Government will contribute no more than \$6 monthly for the benefit of any one needy dependent child. Since a favored state must match the federal allotment \$2 for every \$1 allotted, a needy dependent child may receive up to \$18 monthly. If there is more than one needy dependent child in the same home each additional child may receive up to \$12 of federal and state funds.

**Needy Blind.**—Title X of the Act is designed to enable "each state to furnish financial assistance . . . to needy individuals who are blind." A sum "sufficient to carry

out" the purpose just stated is authorized to be appropriated annually for allotment by the Social Security Board to states having plans for such aid approved by the Social Security Board. For the five months ending June 30th, 1936, seventeen (17) states and the District of Columbia had plans approved by the Social Security Board; and \$2,000,000 was made available for allotments to those states and the District of Columbia. The several favored states must match their allotments dollar for dollar. No more than \$15.00 of federal funds can be received by any beneficiary in one month but since the state must match such allotments dollar for dollar a needy blind person may receive up to \$30 monthly. An individual receiving this aid is not eligible to receive, also, aid referred to in connection with the needy aged.

#### III. GRANTS IN AID FOR PUBLIC HEALTH AND WELFARE SERVICES

Finally, we come to those provisions authorizing federal grants to aid the several states in carrying out designated public health and for maternal and child welfare services, which are found in Titles V and VI of the Act. These titles authorize the appropriation of \$20,088,000 annually for all of these activities. These appropriations, when they are made, are to come out of general funds in the federal treasury. No special taxes are imposed, as in the case of the provisions relating to unemployment compensation and old-age annuities, to provide the funds for their execution.

**Maternal and Child Health.**—To enable, in the words of the Act, each state "to extend and improve, as far as practicable under the conditions in such state, services for promoting the health of mothers and children, especially in rural areas and in areas suffering from severe economic distress," Title V, Part 1, of the Act, authorizes the appropriation annually of \$3,800,000.

State plans for these services must be approved by the Children's Bureau of the Department of Labor, which is the designated federal administrative agency with respect to these provisions, and must provide (1) for financial participation by the state; (2) for the administration of the plan by the state health agency; (3) for such methods of administration (other than those relating to selection, tenure of office

and compensation of personnel) as are necessary for the efficient operation of the plan; (4) for the submission of reports by the state health agency, in such form and containing such information as the Secretary of Labor may from time to time require, and the compliance with such provisions as may, from time to time be considered necessary to assure the correctness and verification of such reports; (5) for the extension and improvement of local maternal and child health service administered by local child health units; (6) for cooperation with medical, nursing and welfare groups and organizations; and (7) for the development of demonstration services in needy areas and among groups in special need.

Authority to approve or disapprove a state plan carries with it, obviously, the power to determine the nature, extent and locality of the activities to be carried on in the state. It would not seem unreasonable, then, to state that these services, within the limits indicated in the Act, will be as extensive or as exclusive as the Children's Bureau chooses to make them.

All grants to aid the states in this work, whatever it may be, are conditioned on approval of the Bureau of any proposed state plan. This safeguard is provided for the reason that many states have not yet evolved sound and satisfactory programs for this type of activity. If a state plan is so approved, that state will receive annually from the federal treasury \$20,000 and such proportion of \$1,800,000 as live births in that state bear to the total live births in the United States. It may also receive a part of \$980,000 which the Bureau is authorized to allot to the states "according to the financial need of each state for assistance in carrying out its state plan, as determined . . . after taking into consideration the number of live births in such state." These allotments must be matched dollar for dollar with state funds.

Services to Crippled Children.—To enable each state "to extend and improve (especially in rural areas and in areas suffering from severe economic distress) . . . services for locating crippled children, and for providing medical, surgical, corrective and other services and care, and facilities for diagnosis, hospitalization, and aftercare for children who are crippled or who are

suffering from conditions which lead to crippling, "Title V, Part 2, of the Act authorizes an annual appropriation of \$2,850,000.

Again, the Act makes no specific enumeration or description of the contemplated services, other than the language just quoted. As to just what these services shall consist of, will be determined by medical representatives of the Children's Bureau and the official state agency charged with the supervision of state activities in this regard.

To each state having a state plan relative to the indicated services, approved by the Bureau, there will be allotted annually \$20,000. The remaining \$1,830,000 of the authorized appropriation is to be distributed, in the words of the Act, "to the states according to the need of each state as determined . . . after taking into consideration the number of crippled children in such state in need of the services . . . and the cost of furnishing such services to them."

Funds provided in this Title of the Act, must be matched dollar for dollar by the state.

The Act sets forth certain essentials that must appear in a state plan before it can be approved by the Children's Bureau, which are similar to the essentials required in state plans for maternal and child health.

Child Welfare Services.—Title V, Part 3, of the Act authorizes an annual distribution, under the supervision of the Children's Bureau, of \$1,500,000 to the states for the purpose of "establishing, extending, and strengthening, especially in predominantly rural areas, public welfare services . . . for the protection and care of homeless, dependent, and neglected children, and children in danger of becoming delinquent." Each state having a plan for these services, developed jointly by the public welfare agency of the state and the Children's Bureau, is to be entitled to \$10,000 annually and such part of the remainder of the authorized appropriation as the rural population of such state bears to the total rural population of the United States. The Act clearly provides that a state so participating must match the federal appropriation at least in part.



**Vocational Rehabilitation.**—Part 4 of Title V of the Act, when read in connection with other federal legislation, which it supplements, authorizes the appropriation of \$1,841,000 for each of the fiscal years of 1936 and 1937, and thereafter, annually, of \$1,938,000 for the states to extend and strengthen "their programs of vocational rehabilitation of the physically disabled." Each state having a state plan in that regard satisfactory to the federal board of vocational rehabilitation (in actual practice, however, these provisions seem to be administered by the Office of Education in the Department of the Interior) is to receive such proportion of the remainder of this sum after deducting \$5,000 which is allotted to Hawaii, as its population bears to the population of the United States, but no state is to receive less than \$10,000. Incidentally, the state must match this federal appropriation dollar for dollar.

**Public Health Work.**—Title VI authorizes other annual federal appropriations to assist "states, counties, health districts, and other political subdivisions of the state in establishing and maintaining adequate public health services, including the training of personnel for state and local health work." The amount authorized to be so distributed annually is \$8,000,000.

The services contemplated are broadly stated and a great responsibility rests upon the Surgeon General of the United States Public Health Service and the State and Territorial Health Officers. Final approval of a state plan is a condition precedent to the receipt of federal funds by the state.

The amount of allotment to each state having an approved state plan is to be determined, according to the Act, by the Surgeon General on the basis of (1) population, (2) special health problems, and (3) financial needs. Regulations promulgated by the Surgeon General and the State and Territorial Health Officers under the authority of the Act provide that 57½ per cent of the \$8,000,000 is to be allotted to the states on a "per capita basis"; 22½ per cent is to be allotted on the basis of special health problems, including the training of personnel, and 20 per cent on the basis of financial need. The Surgeon General's regulations, made after conferences with state and territorial health officers, specifically state that federal grants shall not replace

any portion of existing state appropriations for this work and must be used to enable state programs to be enlarged and extended. The majority of the funds provided for health work have to be matched by the state, dollar for dollar.

Title VI also contains provisions authorizing an annual appropriation of \$2,000,000 to the Public Health Service to be used "for investigation of disease and problems of sanitation . . . and for the pay and allowance and traveling expenses of personnel of the Public Health Service . . . engaged in such investigations or detailed to cooperate with the health authorities of any state."

#### COMMENTS

Granting that social security is desirable, it would appear that all of the people should be included instead of 50 per cent or less, as is provided in the above Act. One section of the population, because of failure to conform to an arbitrary standard set up by the Federal Government, should hardly be penalized by taxing the states that fail to do this and distributing the funds to the other states that do; nor should the thought be implanted too deeply that the Government will provide a pillar of strength for our security, instead of relying upon the initiative and capabilities with which the human race has been endowed and with which it has plowed through every furrow in its march of progress. But, inasmuch as the Act has now become law, and we must live under it and abide by it, it behooves us to become familiar with its several provisions. The factual information contained in the above digest of the Act will give one an opportunity to familiarise oneself with its six major provisions: unemployment compensation, old age assistance, security for children, aid to the blind, extension of public health services and vocational rehabilitation.

Let us first give brief consideration to those features of the Act bearing upon health and the medical profession.

Probably the greatest single benefit to be derived from this federal subsidy should be its effect on public health work. Eight millions of dollars (\$8,000,000), if wisely and judiciously expended in this cause, should be productive of much good.

The provisions of the Act dealing with allotments to states for public health are

broadly definitive, and wisely so, as to how such allotments to the several states are to be determined; they are on the basis of (1) the population; (2) the special health problems; and (3) the financial needs of the respective states. These determinations, as well as the general policies to be employed in the application of these allotments, were arrived at (as provided in the Act) after many conferences had been held by the Surgeon General and his staff with the State and Territorial Health Officers. Alabama's State Health Officer had the privilege of serving on a committee representing the State Health Officers, in collaboration with the Surgeon General and his staff, in formulating the many important administrative details involved. These plans, when evolved, were then submitted to the entire Conference for amendment or change before final approval was given. Spatial limitations do not here permit of even a brief outline of these. The attitude of the Federal Government in the administrative aspects of these funds has been broad and, in no sense, paternalistic or dictatorial to the state health agencies responsible for their expenditure. Thus far, no state's autonomy has been interfered with; it being the State Health Officer's responsibility to see that such funds as were allocated to his state for purposes of building and strengthening health work were wisely expended within his own organization and to meet his own peculiar needs. Because of the splendid machinery for local health work which Alabama's health department has been developing over a period of more than twenty years, the entire medical profession, which has contributed so largely to the upbuilding of this system, should feel hopeful that this added federal aid will quickly enable the health department to make more vigorous assaults upon many health problems in this state now crying for attention, such as the much neglected ones of tuberculosis and venereal disease control. The entire membership of our Association is quite familiar with the hard tussle which the health department, in the last several years, and because of its much reduced state appropriation, has had in holding intact its field and central organization.

As this is being written, the Legislature is in extraordinary session for the specific

purpose of increasing the state's revenues so that the necessary functions of government may be carried on effectively. Specifically, in the case of the appropriation for health work, this, through the application of proration, has been so reduced (by some \$150,000) that neither its present field force can be held intact nor the much needed programs for tuberculosis and venereal disease control inaugurated.

The Committee on Public Relations, therefore, would urge that our physicians throughout the state endeavour to impress upon their senators and representatives the real need for at least stabilizing the present appropriations for health so that full utilization may be had of available federal funds and needed health activities be begun.

The Act, as it is now written, does not appear to affect private practice, other than in widening the scope of activity in certain fields of public health and of medical service to the necessitous in designated groups not now receiving, and not able to procure such medical service. The groups particularly held in mind in Title V of the Act, the administration of which falls in the Children's Bureau of the Department of Labor, are the pregnant mother and her infant and the growing child, be he crippled, handicapped or underprivileged. Adequate, satisfactory machinery for caring for the needs of these groups, specified in the Act, will call for the closest integration of the practising profession, including financial participation, commensurate with the service rendered. If the tax payer's money, as has already been decreed by our Federal Congress, is to be used in rendering a particular technical service to special needy groups, then those who are to provide such service most certainly should be accorded a voice in the shaping of plans, as well as receive a reasonable compensation for such services. In Alabama, because of the close interlocking of the medical profession and of its health department, which is the official agency responsible for the administration of state programs, the opportunity presents of evolving, with little or no friction or difficulty, plans to carry on such expanded programs which should be satisfying to all concerned. In truth, such plans are already in operation and are functioning in frictionless fashion.



The State Health Officer has announced that, so soon as the health department's finances will permit, he is hopeful of developing a state-wide program for the control of venereal disease, in which the practising physicians will be relied upon to play an important part. Programs developed along these lines, with physicians playing a co-operative and understanding part, will likely prove the best guarantee against general socialised medicine or compulsory health insurance.

During the many hearings held in Washington prior to the passage of the Social Security Act, considerable pressure was brought from certain quarters, but without avail, to have incorporated into it certain compulsory health insurance provisions. Quite likely, these efforts will be repeated in the forthcoming sessions of Congress. While the sentiment now for such action does not seem so prevalent, organised medicine must stand ready and solidly to oppose any hasty or ill-conceived legislation of this nature. The recent utterances of the President on the occasion of the dedication of the Jersey City Medical Centre, seem clear, and should give assurance that at least he is not now ready to overturn the existing status or to aimlessly be led into uncharted blind alleys without the counsel and advice of those who are supposed to know—the doctors. On this occasion he said:

"The medical profession can rest assured that the federal administration contemplates no action detrimental to their interests. The action taken in the field of health as shown by the provisions of the splendid social security act recently enacted is clear.

"There are four provisions in the social security act which deal with health; and these provisions received the support of outstanding doctors during the hearings before the Congress. The American Medical Association, the American Public Health Association and the State and Territorial Health Officers' Conference came out in full support of the public health provisions. The American Child Health Association and the Child Welfare League endorsed the maternal and child health provisions.

"This in itself assures that the health plans will be carried out in a manner compatible with our traditional social and political institutions. Let me make that point very clear. All states and territories are now cooperating with the public health service. All states except one are cooperating in maternal and child health service, all states but ten in service to crippled children, and all states but nine in child welfare.

"Public support is behind this program. But let me stress in addition, that the act contains every precaution for insuring the continued support and cooperation of the medical profession.

"In the actual administration of the social security act we count on the cooperation in the future, as hitherto, of the whole of the medical profession throughout the country. The overwhelming majority of the doctors of the nation want medicine kept out of politics. On occasions in the past, attempts have been made to put medicine into politics. Such attempts have always failed and always will fail.

"Government, state and national, will call upon the doctors of the nation for their advice in the days to come."

The Act is so written that if one section is declared invalid by the Supreme Court the whole is not invalidated. The compulsory unemployment insurance section is now under fire and may be thrown out. It is very unpopular with the industrial world and the Supreme Court is not entirely oblivious to public opinion. But that increasing majority of impecunious humanity who have had a taste of socialism will continue in their effort to reduce all humanity to the lowest common denominator.

The physician might also ask: What does the Social Security Act mean to him as a private citizen? Time does not permit a detailed discussion on this phase, although demanded by its importance. A brief reference to the unemployment insurance and old age sections will give an idea of the effect of the Social Security Act on the private citizen. It is the greatest tax bill of all history. Beginning January 1st, the Government begins collecting taxes on twenty-six million employees and two hundred thousand employers. The records must be kept alive. To do this effectively will likely require several million checkers, re-checkers and employees of various sorts. Bureaus will be pyramided and there is not a building in Washington large enough to house the records. It is estimated that one out of every five will be on the government pay rolls. Farmers, farm labor and domestic servants are excluded from both employment insurance and old age insurance, except that the latter are not restricted to employees of eight or more, but all employees of one or more are included. Parenthetically, it may be that of all classes of humanity—old age and the infirmed of all ages—are the ones most entitled to help and sympathy.

We are told that the tax will be equally divided between the employer and employee. But this is not so. The whole will be borne either by the employee or by the consumer through higher prices.

This tax on pay rolls is a tax on employment. In bad times it increases unemployment, and unemployment breaks wage scales.

Now let us briefly look at the so-called old age insurance plan. It is raised by yet another set of taxes, and benefits only about fifty per cent of the population. None of our old age people will get any pension at all until 1942. The amount of each worker's pension will be determined by his wage scale and the time worked, and this will have to be checked constantly throughout his industrial life. Just think of the amount of labor and the expense involved in keeping track of this amount of clerical work! During the next ten years only ten cents out of every dollar collected from the workers will be paid out as benefits. And from now until 1950 only 16 cents out of every dollar collected will be paid out as benefits, thus leaving a temptingly large sum in the treasury. The theory is that this money goes into a reserve fund to be invested at interest, but all this is a promise and not a contract. There is nothing to prevent a liberal administration, such as we now have, from using this fund for current expenses and have the treasury give the treasury some bonds. When old age comes up for its pension, these "I. O. U.'s" will be handed to them in shape of bonds. However, we likely need not worry about this, because it is probable that this and many other features of the New Deal will not be existent forty-four years hence when one, twenty-years of age now, will be sixty-five. It is a bet in official circles that the old-age insurance in the Social Security Act will not operate on its present basis because of what are being recognised as impossible administrative difficulties. A worker has to earn \$125.00 a month every single month for the next twenty years to get a monthly pension of \$37.50, and \$125.00 a month for the next 45 years to get a pension of \$59.38 a month for himself and wife. The unemployment and old age insurance sections of the Act seem to be designed especially for the benefit of organised labor and has its almost undivided support.

These, in brief, are the principal provisions of the Social Security Act. Social security is undoubtedly desirable but social security for the whole nation and not merely social security for a limited group. Even if the present Act should effect social security for the limited groups covered by it, a large part of the population would remain without benefit. In fact they would be penalised by the Act because they will be required to contribute, in the form of direct and indirect taxes, toward its enormous costs.

Whatever may have been the aims of the proponents of this legislation, the fact remains that when the assumed objects of the Act are squared off against its actual provisions, when the implications of those provisions are even faintly comprehended, and when thought is given to the constitutional limitations of the Federal Government and to the field of the sovereignty of the several states, the Social Security Act appears as illusory and dangerous legislation.

To laymen it would appear that most lawyers who have studied the Act agree as to its unconstitutionality in that by it the Federal Government attempts to assume functions totally outside the scope of the constitutional functions of the Federal Government, functions which properly belong to the several states. Aside from the question of constitutionality, the underlying theory of grants in aid, as enunciated in the Act, appears wrong because it enables the Federal Government to dictate to the several states concerning purely local matters and to encroach on their sovereignty. As is stated in a report of the Special Committee on Social Security and Unemployment Insurance Law, given to the Section of Insurance Law of the American Bar Association at its annual meeting in Boston, August 24-28, 1936:

"... grants in aid for purposes wholly outside the scope of the enumerated federal powers tend to break down the distribution between state and nation by purchasing submission to central domination. Any state courageous enough to withstand this type of coercion must suffer the penalty of receiving none of the bounty of the federal tax monies contributed by it. In principle, this form of encroachment is opposed to all our constitutional concepts and should not be tolerated."

Thus, it will be seen that the average citizen is involved in every transaction of



government and his interest in the Social Security Act is by no means confined to that part relating to public health and welfare alone.

It is incumbent upon the medical profession to become familiar with all important social and economic trends and to be prepared to aid in shaping all forms of

medical practice for the best interests of organised medicine.

Finally, the Committee on Public Relations would like to express appreciation to Dr. Wm. C. Woodward and Dr. T. V. McDavitt of the Bureau of Legal Medicine and Legislation of the American Medical Association for the valuable assistance rendered in the preparation of this article.

## DEPARTMENT OF PUBLIC HEALTH

### BUREAU OF ADMINISTRATION

J. N. BAKER, M. D.  
State Health Officer in Charge

#### THE NEED FOR INTEGRATION OF THE PRACTISING PHYSICIAN INTO A VENEREAL DISEASE PRO- GRAM

One of the charms of health work for the administrative officer of vision and alertness is the endless vista of possible achievement everlastingly unfolding before him. His creative imagination, however, does not long soar before it receives many rude awakenings from budget limitations and a widespread blight of public indifference, apathy and ignorance. In the recent action taken by the Federal Congress and incorporated in Titles V and VI of the Social Security Act, we witness the long-entertained aspirations of health workers taking material form, through making available to states, federal subsidies for the specific purpose, not of relieving, but of expanding, existing inadequate state and local health budgets. Upon the wisdom and judgment displayed by the State Health Officers, to whom the Public Health Service must needs look for the administration of these subsidies, much of the future success and development of organised health work in this country will depend. In an effort to make wise use of these additional funds, it becomes at once apparent that each administrative health officer should preserve a broad perspective, viewing his multifarious health problems in their entirety and weighing each in the scales of relative importance to the population group to be

served and of the benefits accruing from any expenditure of tax monies made available for health work. So widely do health problems vary in different sections of our country, that what for one state looms as a major affair, for another exists not at all. For example, throughout the South, interest in Rocky Mountain spotted fever is largely academic, just as is malaria and hookworm throughout the West and North. However, certain other health hazards for mankind, heedless of geographic or climatic limitations, constitute very definite problems for every health officer; and of these, one of the greatest and most urgent is the need for at least a beginning program for the control of the venereal diseases in every state of the Union. The financial restrictions to our budgets, mentioned above, can now be lifted, at least in part, through the judicious application of some of the available federal funds to this particular problem. Furthermore, and for us whose responsibility it clearly is to plan the fight and lead the onslaught, the sudden reversal of an age-old attitude of "squeamishness" (Parran) and of a "conspiracy of silence" (Moore), on the part of society as a whole, as well as of the moulders of public opinion—the lay press, the radio and the cinema—to bring out into the open these "social diseases," creates the long-wished-for opportunity for health workers of making its first organised frontal attack.

For the membership of this group there is no need for here rehashing scientific and statistical data in justification of our decision to act. Such data are readily accessible and have been so clearly and concisely stated by recognised authorities as to defy improvement. Let it suffice to now state that estimates based upon these statistics point to the fact that 10 per cent of the

\*Paper read before the American Public Health Association, New Orleans, October 21, 1936, and appearing concurrently in the publication of that organization.

American people are infected with syphilis. We, as health workers, know a major health problem is all about us; the medical profession likewise knows this; and now that the layman is learning to know this, it behooves us to plan and to organise.

At this juncture, one might inject the thought that, while this particular discussion has been built solely around syphilis, the administrative health officer, in attempting to shape a comprehensive and well rounded venereal disease program, should not lose sight of the agonising distress and irreparable damage which can be and is being done society by the plebeian, yet potent, gonococcus. His rich harvest of human sterility and blindness cannot be ignored.

In the brief discussion which follows, no attempt will be made to enter into the details of any particular type of administrative program to serve for your guidance. In the present uncrystallised state of our developments, no one of us is prepared to come forward with a "model plan" for general adoption. In truth, and for very obvious reasons, one might well question the wisdom of such an attempt. In the published report of "The Advisory Committee to the United States Public Health Service," with which members of this group should be entirely familiar, the salient factors to be given consideration in any well conceived program are succinctly set forth. So earnestly and so efficiently has this Committee performed this beginning task, that it is felt a word of thanks and commendation, not only from the Sections here represented, but in behalf of the entire membership of the American Public Health Association would be but a fitting gesture. Furthermore, of great importance, also, to the stimulation of interest in this work, have been the valuable contributions to the recent literature made by the individual members of this Committee.

A program of control for any disease, conceived on a nation-wide basis, would prove to be no small undertaking. The universality of syphilis, its endless social ramifications, its chronicity, its protean nature and elusiveness, the many difficult aspects of its medical management, the public's crass indifference and want of knowledge, a widespread lack of familiarity on the part of the rank and file of physicians

with the newer technics of diagnosis and treatment—these are some of the obstacles which are to be overcome. All of these factors are important: yet some transcend others in importance. To the writer's mind, none is deserving of more consideration than that of evolving sound plans whereby all the latent forces within the practising medical profession may be brought into full play. It must be borne in mind that syphilis is a contagious disease, transmitted most often, save in the congenital type, by direct personal contact, and that all effort at control, other than rendering the infected case non-infectious through proper and adequate treatment, has proven quite ineffective, if not quite futile. In the control of no other health problem of major import with which the health official has thus far had to deal, have the factors of *early recognition and approved scientific treatment* played such a tremendous role. The peculiar and unquestioned sphere of activity of the practising physician is the treatment of the sick individual. Throughout the country, as a whole, it is estimated that 65 per cent of the cases of syphilis under treatment are in the hands of private physicians. Potentially, and in actuality, does not this contemplated, nation-wide control program against syphilis present the rare opportunity for the amalgamation into a close-knit confederacy of all human forces interested in mankind's uplift? The leaders within the medical profession are acutely aware of the dangers to society lurking in this venereal menace, and are eager—nay more, if I mistake not, are yearning—to see evolved a program of such vision and breadth as will permit of full utilisation of their profession's talent. The more complex our social structure becomes, the more apparent it also becomes that there need not be—there must not be—even a semblance of dichotomy of the forces of medicine and of health. Both are but the trained implements of society, having a common parentage and a common goal. If the premise be granted that the control of syphilis is a health problem justifying the expenditure of tax monies, then it should logically follow that health administrators who are to be held responsible for shaping and administering programs of control should see that such programs are broad-based and sound and as inclusive as pos-



sible. In order to make them so, a most important first approach is participation, in an active and financial way, of those members of the practising medical profession manifesting a distinct interest and a willingness to devote a certain portion of their time and study to such a program. There will likely be many physicians whose absorption in other fields of endeavor or whose personal inclinations, training, or tastes would not prompt active participation; yet, who would welcome relief from a venereal burden which, per force, they are now reluctantly carrying, were they assured of adequate scientific care for those of their clientele needing it. In truth, there are many physicians who conscientiously feel that, because of the techniques to be employed and because of the persistent and long-continued treatment necessary to effect a cure, venereal cases should rightfully be handled by those sufficiently interested to master such techniques. However, for all physicians, including the group mentioned above, our initial plans should incorporate means for taking to them, through all ethical avenues of approach, the newer knowledge and approved techniques in diagnosis and treatment. Every practitioner must be impressed, when confronted with a suspicious lesion anywhere on the body, and more particularly when appearing on the genitals, of the danger of temporising measures and of the value of dark field and serological examinations. Already, through postgraduate and refresher courses, sponsored by state and county medical societies, he has been made conscious of the dangers lurking in dilatoriness when dealing with acute abdominal conditions, obstetrical emergencies, suspected tuberculosis and precancerous lesions; but thus far little stress has been laid upon these important things when a possible early case of syphilis presents. Because of these efforts on the part of organized medicine and also because of the fact that the product of the modern medical school which today enters upon the practice of medicine is being better trained in the preventive aspects of disease, physicians as a whole are thinking more and more in terms of prevention as well as of cure, and consequently should be relied upon to give whole-hearted support to a co-operative program such as the one now under contemplation. Within each

central health department, therefore, adequate provision should first be made for carrying to the rank and file of the profession this much needed information. If this approach is properly and tactfully made, incorporating, at the same time, into the practical application of the program, provision for the financial participation of interested doctors, we will quickly witness, I doubt not, a renaissance within the profession toward the venereal diseases. The ultimate goal of such a professional educative endeavour should be the development within and throughout the profession in each state, not of specialists in the strict sense of the term, but of many physicians, partially, but soundly, trained in venereal disease rudiments and capable of assuming responsibility in official programs which might be sponsored for their communities. It is to be hoped that, as organization for this work becomes perfected, provision can be made for the development of much of this latent talent within the practising profession, through the use of short intensive courses in the larger teaching centres.

Synchronously, and hand in hand with the profession's educational program, should go the making readily and easily available adequate laboratory facilities of which physicians are to be taught and encouraged to make free use. Following through with the premise previously stated that the control of syphilis is a legitimate public health function, it clearly becomes the responsibility of the administrative official to provide such facilities, in so far as budgetary limitations will permit. This means that every effort should be made by health departments to expand their present laboratory facilities so as to be able to give, at as many points as possible, a dependable dark field and serological service. In order to further stimulate interest in the early diagnosis of suspicious initial lesions, physicians should be supplied with and encouraged to make use of the capillary mailing outfit, as now practised by the New York Department of Health. In my own state—Alabama—it has been found that our system of laboratories—nine in number and all under direct state supervision—has proven the most highly appreciated service we render, both on the part of the medical profession and by the public. Furthermore, this laboratory service has proven a

most valuable adjunct in the elevation of the standards in the general practice of medicine. In the immediate future, we plan to equip as many as possible of the branches with dark field services in addition to the serological tests which are already available.

In those states having large urban centres, where hospital and clinic facilities and trained medical talent abound, a first logical approach would be, in the interests of greater compactness and efficiency of administration, a fusion of the separate and dissociated facilities already existing. Here, the greatest difficulties, other than the ubiquitously financial ones, are likely to arise from an unwillingness to submerge an independent, individual interest into the whole, for the common good. For the guidance of such as these, a leaf might well be lifted from the recorded history of medical education in this country. At the dawn of the present century, we boasted 160 medical schools, many of which were both commercial and unsavoury. Today we possess but 67, recognised and accredited. These results were attained, not through extraneous compulsion, but through persistent efforts within the medical profession to junk the worthless and preserve and improve the worth while. By the same token, for the successful control of the venereal diseases, just as for the purification and elevation of medical education, there will be needed the powerful forces inherent in organised medicine in order to harmonise and perfect enduring programs.

In the message to be taken to the general profession, the epidemiological aspects of venereal disease control must be iterated and reiterated. Probably the most valuable service which the practising physician can render, after first gaining the confidence of his patient, is to probe to the bottom for the origin of each case with which he has to deal. The epidemic cycle which is prone to characterise cases of syphilis occurring in communities, should act as an added stimulus to his inquisitive mind, already trained in ferreting out difficult and obscure problems. However, the obstacles met in attempting to apply productive epidemiologic techniques, even by skilled health workers, are so considerable and time-consuming as to likely dampen the ardour of the individual physician, unless there is

placed at his disposal a dependable and functioning unit designed to serve this end. Here, again, is a fertile field of activity, which, if properly rendered, will prove but another means of cementing the medical profession to the sponsored program of the official health agency. This epidemiologic phase of this subject will, I know, be presently presented in detail by another essayist; and, in no sense, is it intended to here trespass upon his field. But the importance and value of this particular type of co-operation on the profession's part is, to the writer's mind, so great as to warrant repeated stressing.

Did time permit, there are many other interesting phases of this question, which, from the administrative angle, might be discussed with profit; chief among these would come a sane and carefully thought-through educative program for the general public. But likely none will present in the formative stages of our work of greater significance than that of the full utilisation and wise integration of the interested practising physician.

---

## BUREAU OF PREVENTABLE DISEASES

D. G. Gill, M. D., Director

### EARLY SYPHILIS—THE SECONDARIES

In the December issue of the Journal, "Early Syphilis—The Chancre," was discussed. It is the intention to carry these articles through the various stages of syphilis. But it is well to bring out at this time that no sharp line of demarcation occurs between the various stages of this disease. Formerly, most students of medicine were taught that there were three stages of syphilis—namely; primary, secondary and tertiary. It was usually thought by these same students that these stages were distinct and separated by definite periods of time. Recent advances have shown that this is untrue. Definite constitutional symptoms and objective signs of generalized syphilis of the nervous system have been known to occur within one week of the appearance of the chancre. On the other hand, cutaneous manifestations may be entirely lacking. As high as sixty per cent of patients found to have syphilis in later life can give no history of secondary



lesions of any description. Since 81.1% of the secondary syphilis observed show lesions of the skin, this group of lesions will be discussed first.

In arriving at a diagnosis of syphilis in the arbitrary secondary stage, a history of a primary sore is highly important as necessary collateral evidence. But approximately twenty-four per cent of all patients with all types of lesions gave no evidence in history or examination of ever having had a chancre. It is, then, quite evident that too much reliance cannot be placed on the history of a chancre as a diagnostic aid in the cutaneous secondaries. Yet, when the chancre has occurred, its existence becomes a valuable aid in diagnosing skin lesions. Secondary syphilids of the skin combine five types of lesions with five types of characteristics. The lesions are macule, papule, pustule, "follicule" and scar. The characteristics are distribution, configuration, association, induration and indolence. Color has been definitely left out of the picture because many diagnostic errors have arisen from attaching importance to "raw-ham" or "copper-colored spots."

Although the secondary syphilids tend to be universally distributed over the surface of the body, certain syphilids show a tendency to localization. The macular eruption tends to be seen on the flanks, abdomen, shoulders, upper arms, back and chin. The papular has the same distribution, with an increased tendency for the face, palms and soles. The pustular eruption occurs on the face and scalp, but may be seen occasionally in all skin surfaces. This latter would be classed as the "smallpox" distribution. The follicular type is seen on the back and extensor surfaces and when it occurs in the scalp alopecia develops. The follicular eruption cannot appear on the palms or soles since there are no hair follicles in these areas. The papular stage of a macular eruption has a tendency to show mucous erosions in mucous membranes and papules on the palms and soles. The maculo-papular eruption is quite often associated with condylomata at the anus and in the flexures. Annular syphilids, which are ring-like arrangements of papules, usually appear on the face in white patients. But these latter lesions are much more common and of a more general distribution in the colored patients. Config-

uration, or the contour of the skin manifestations of syphilis, is often an essential characteristic; although it is more especially true of late lesions, yet in certain early syphilids it is important. Annular, or ring-shaped lesions, should always arouse in the physicians' mind syphilis. These annular lesions may be the result of a single papule that has undergone peripheral spread, or this may be a group of papules. The grouped follicular lesions, and cluster-like papular lesions, are highly suggestive of, and usually prove to be, syphilis. This follicular grouping is usually uniform and the groups resemble each other, although they are often abundant and widely scattered. Papular syphilids often leave depigmented areas which represent the residual scars.

Signs and symptoms associated with skin lesions are often important aids in establishing a diagnosis. A membranous sore throat, plus a macular eruption and shotty papules in the palms, suggests syphilis. Firm, flat papules on the tongue, and erosions in the mouth, is almost certain to be syphilis. A macular eruption, with erosions in the mouth and papules about the genitalia, suggests syphilis. In the presence of a general macular eruption, if the mouth and genitalia remain uninvolved, the diagnosis is against syphilis. General adenopathy, with an indolent general eruption, favors syphilis. A general eruption, with marked itching, is often against a diagnosis of syphilis. Rapidly falling hair and severe headaches with skin lesions is highly suggestive of syphilis. A sore throat, with a general macular eruption that persists more than one week, ought to focus attention on syphilis as the diagnosis. It may also be said that an eruption in an adult which is, for the most part, vesicular is almost never syphilis.

Syphilis lesions, as a rule, develop gradually. This slowness in evolution develops infiltration in the lesions which give the hardened feel. This occurs in papular and annular syphilids. Syphilis lesions are in the skin. Chronicity and mildness are part of the syphilis process. There is usually little pain connected with the rash.

If the history of a chancre is given, the existence of a suspicious skin lesion is shown, a general adenopathy is seen, and other signs of collateral evidence of syphilis,

it is probable that syphilis will be suspected. But the clinching factor in the diagnosis is the serological test. In almost all florid secondary syphilis, the blood Wassermann is found to be positive. It is so frequently positive that many syphilologists suggest that the blood of cases in their florid secondaries be used as a check for laboratories on the efficiency of their technique.

W. H. Y. S.

To Be Continued

---

## BUREAU OF HYGIENE AND NURSING

B. F. Austin, M. D., Director

### THE PHYSICIAN AND MATERNAL CARE

Rarely does a more severe test come to the average woman than in parturition. Everywhere, today, attention is being directed, and rightly so, to the unnecessary death of mothers due to pregnancy. Only recently a report of a study of "Maternal Mortality in Jefferson County" was sent to the physicians of Alabama.

A general knowledge of the public health problems related to maternity and infancy is being gradually increased. It has been very aptly written, "The mere increase of knowledge, and particularly the knowledge of preventive medicine and the ways and means of personal hygiene and well being, can do nothing of itself to prevent disease and safeguard health. It must be understood, accepted and practiced." Public health workers recognize the importance of impressing upon every citizen a knowledge of the dangers that confront potential mothers during the child bearing period. They endeavor to spread that knowledge through means of articles published in newspapers and periodicals, radio talks, public lectures and personal and group conferences. No longer is the teaching of the importance of maternal care directed to the mother alone. The expectant father and the public in general are learning more and more of this important subject.

The tremendous task of making motherhood safer rests not only upon the physician who renders medical care during the prenatal, delivery and postnatal period. The public shares in this responsibility. Every community should provide the facilities for

adequate care to every expectant mother for the price she can afford to pay. These facilities will be provided only when the public recognizes the importance of adequate care and what that care should include.

The purpose of maternal care as given today is to minimize the discomforts and perils of pregnancy, labor and the puerperium, and to so safeguard the mother and her baby that both will emerge from the lying-in period in a satisfactory condition and with a bright prospect for continued good health. The value of these safeguards is shown by the satisfactory results of the care given the patients in well conducted hospitals and in the home when adequate medical supervision is provided and by outpatient departments and nursing programs.

In Alabama the midwife situation presents a problem in maternal care. A practical approach to aid in lessening this problem of midwife deliveries is being sought in some places through prenatal medical examinations of those expectant mothers in the lower income groups. With the approval of the county medical society the county health nurse refers to prenatal medical clinics all pregnant women who have no means for employing physicians or definitely state they expect to have a midwife at the time of delivery. Furthermore, with the approval of the county medical society some county health nurses make home visits, take temperatures, do blood pressures and urinalyses on those expectant mothers who are planning to have a midwife at the time of delivery. The public health nurse also urges upon every expectant mother the importance of securing medical attention early in pregnancy and following the advice of the physician throughout the entire period of pregnancy, delivery and the puerperium. A difficulty frequently encountered by the public health nurse is that when a prenatal case is sent to a physician he dismisses her lightly, often not even a specimen of urine is taken, blood pressure not observed and no attempt made to give a thorough medical examination. Such physician robs the expectant mother of an all important service she deserves.

It is urged that the medical profession of Alabama regard more seriously the importance of good medical care during pregnancy, labor and the puerperium. When



the physician has conscientiously made medical examination and rendered medical supervision to the best of his ability he has fully assumed his responsibility in the effort to lower maternal mortality. To this end we earnestly solicit the enthusiastic interest of every physician in the program for lowering maternal morbidity and mortality rates in Alabama.

## BUREAU OF SANITATION

G. H. Hazlehurst, C. E., M. C. E., Director

### PRESERVATION OF STEEL TANKS FOR PUBLIC WATER SUPPLY STORAGE

WITH SPECIAL REFERENCE TO THE USE OF THE  
WATER FOR DOMESTIC PURPOSES

An essential part of a waterworks system is its pressure storage reservoir. Such a reservoir not only aids in providing a constant pressure in the distribution system but maintains a standby supply, in case of a breakdown in other plant equipment, including pumps, motors, etc. Such a supply has in many instances provided water for human consumption when without it the customers would have been forced to get water elsewhere temporarily — perhaps from a private or unsafe supply. Possible fire hazards are also minimized by an adequate storage of water under pressure.

Elevated tanks and standpipes are largely of steel construction. The preservation of this type structure against deterioration, mainly corrosion, is of utmost importance.

It has been conservatively estimated that the destruction due to corrosion is over one million (1,000,000) tons of iron and steel each year. While many theories set forth definite differences as to the actual causes of corrosion they are agreed that without the aid of moisture and oxygen the process could not continue. Generally speaking, therefore, steel should be protected by a coating or paint which will resist the action of air and water.

The value of necessary and periodically applied protective measures for steel tank maintenance is universally recognized. There are hundreds of kinds of paints and coatings manufactured by different commercial concerns which have proved themselves satisfactory for protecting steel against corrosion under various conditions.

A test of 196 different kinds of paint and other coating materials for the interior of

water tanks was made by the Pittsburgh Des Moines Steel Company and the Borough of Ambridge, Pennsylvania in 1932. "The basis of rating used was that each individual panel would be assigned a percentage which in the judgment of the inspector represented the percentage that the condition of the panel at the time of the inspection bore to its original condition." The highest average class ratings described in the test after 100 days exposure are as follows:

Red lead and linseed oil 93.3% ; coal tar paint 86.9% ; asphalt emulsion (plain) 85% ; hot bituminous coating 98.9% ; thick plaster coating 84.8% ; elastic 89% ; aluminum paint 88.4% .

It is generally recognized that paint which will resist the action of water in certain localities sometimes breaks down very quickly under the action of water of different types encountered in other localities. In making the above tests the Pittsburgh Des Moines Company took this fact into consideration and selected a water which was proved to be extremely severe on most all of the common types of paint. It was thought that a paint which would resist the corrosive action of the Ambridge water would in all probability be superior for exposure to other waters in various parts of the country, to other paints commonly used.

Results of tests on similar paints by other interested parties have not exactly coincided with the above. The need for further investigation is indicated.

From the foregoing it is evident that a chemical analysis of the water to be stored is a helpful factor in selecting the most suitable paint for a steel reservoir.

The Alabama State Department of Public Health does not make a practice of analyzing paints nor does it make chemical analyses of waters. It does, however, have records of results of certain chemical determinations including alkalinity, free  $\text{CO}_2$ , hardness and pH value, or hydrogen ion content, on a majority of the municipal water supplies. These are furnished to town and city officials following certain field inspections or upon request. Officials are advised to purchase paints and coatings for steel structure from reliable concerns or to allow the contractor to use paints which he is willing to guarantee in a satisfactory manner.

The coatings are sometimes applied by the manufacturer or their representatives who are held responsible for the results.

Regardless of the type paint used the drying period is of extreme importance not only for best results as a protective agent but to prevent tastes and odors from getting into the distribution system. Seventy-two hours is normally considered a minimum drying period.

After the paint is dry the tank should be thoroughly disinfected before it is put into service for a domestic water supply.

T. H. M.

## BUREAU OF VITAL STATISTICS

Leonard V. Phelps, S. B. in P. H., Director

### REGISTRATION AND THE PHYSICIAN

There were 62,497 births of residents of Alabama which occurred in 1935. Of that number 39,389, or 63 per cent, were attended by physicians and the remaining 37 per cent, by midwives. It will be seen, therefore, that it becomes the duty of a physician to file birth certificates for approximately two out of every three births. The excellence of the registration of births, then, depends chiefly upon the doctor and how accurate and prompt he is in filing certificates.

It is generally acknowledged that few physicians like the clerical work involved in their practice. The proper completion and filing of certificates is an important part of it. Although it is a legal requirement and one which every physician agrees to comply with when licensed to practice medicine, that should not be the impelling motive alone, but rather the realization that a moral obligation to do so exists between him and his patient.

The registration of births is of primary importance. Thousands of individuals in Alabama are finding it necessary to prove certain facts in connection with their birth. Upon the attending physician rests the responsibility of making that possible.

In case of a stillbirth, the pink certificate (Form V. S. 3) should be used. This is a combination of the birth and death certificate. The physician should complete items 1-34, inclusive. He should sign it twice, once as attendant at birth (Item 28) and once as attendant at death (Item 33). The

undertaker or person in charge of the body then completes items 35-38, inclusive. If a licensed undertaker is given charge of the body, it is his responsibility to file the stillbirth certificate with the local registrar of the registration district in which the stillbirth occurred.

Several undertakers, when questioned as to their failure to file certificates within 72 hours of the date of stillbirth, have given as an excuse that the attending physician failed to cooperate with them by completing his part of the certificate promptly. Unless they are completed promptly, it will delay registration and may result in a failure to be registered at all.

In the filing of both stillbirth and death certificates, the physician can be of the greatest assistance by promptly completing that part of the certificate required of him and by leaving the certificate where the undertaker in charge may easily get it. As a suggestion, the certificate might be left at the home of the decedent where the undertaker might get it when calling for the body, or at the office or home of the physician in attendance.

In every case, whether it be a stillbirth or a death, it would be appreciated if the attending physician, when some member of the decedent's family or friend, other than a licensed undertaker, is in charge of the body, would advise that person of his responsibility of filing a certificate with the local registrar. If he does not understand how to complete the certificate or cannot write, the assistance of the attending physician will be greatly appreciated.

During the last two years six articles have appeared on this and kindred subjects in this Journal. They were specially prepared to assist the physician in the reporting of births, stillbirths and the medical certification of deaths, and also in the completion of maternal mortality schedules. They are listed below:

Registration of Vital Statistics—May, 1935.

The New Certificate for the Registration of Stillbirths—December, 1935.

Resolutions that Count—January, 1936.

Certification of the Medical Certificate of Death—April, 1936.

Revised Maternal Mortality Schedule—May, 1936.



The Importance of Registering Births and Deaths—October, 1936.

Get out your Journals and read the above articles. If you have any questions pertaining to the registration of births and deaths, write to this Bureau and you will receive a prompt reply. You can help to make registration in 1937 more complete, accurate and prompt. We are counting on your cooperation.

## CURRENT STATISTICS

### \*PREVALENCE OF COMMUNICABLE DISEASES IN ALABAMA

1936

|                       | Oct. | Nov. | Estimated<br>Expectancy<br>Nov. |
|-----------------------|------|------|---------------------------------|
| Typhoid               | 63   | 33   | 46                              |
| Typhus                | 51   | 29   | 13                              |
| Malaria               | 2948 | 722  | 395                             |
| Smallpox              | 1    | 0    | 2                               |
| Measles               | 3    | 4    | 52                              |
| Scarlet fever         | 117  | 106  | 212                             |
| Whooping cough        | 51   | 24   | 75                              |
| Diphtheria            | 210  | 203  | 332                             |
| Influenza             | 83   | 223  | 226                             |
| Mumps                 | 45   | 78   | 31                              |
| Poliomyelitis         | 30   | 7    | 3                               |
| Encephalitis          | 0    | 3    | 2                               |
| Chickenpox            | 23   | 49   | 81                              |
| Tetanus               | 9    | 0    | 6                               |
| Tuberculosis          | 283  | 226  | 270                             |
| Pellagra              | 11   | 5    | 21                              |
| Meningitis            | 6    | 5    | 4                               |
| Pneumonia             | 78   | 172  | 186                             |
| Syphilis              | 1454 | 870  | 143                             |
| Chancroid             | 8    | 11   | 7                               |
| Gonorrhea             | 355  | 305  | 150                             |
| Ophthalmia neonatorum | 0    | 1    | 2                               |
| Trachoma              | 0    | 0    | 0                               |
| Tularemia             | 0    | 0    | 0                               |
| Undulant fever        | 5    | 2    | 2                               |
| Dengue                | 5    | 0    | 0                               |
| Amebic dysentery      | 3    | 4    | 0                               |
| Rabies—Human cases    | 0    | 0    | 0                               |
| Positive animal heads | 53   | 68   |                                 |

\*As reported by physicians and including deaths not reported as cases.

The Estimated Expectancy represents the median incidence of the past nine years. With the venereal diseases, clinic cases were not included prior to this year.

## Woman's Auxiliary

Mrs. H. W. Gray  
State Publicity Chairman  
Mobile, Ala.

The eleventh annual convention of the Woman's Auxiliary to The Medical Association of the State of Alabama was held in Montgomery April 21st to 23rd. The Auxiliary is guided by an Advisory Council of three members appointed by the President of the State Medical Association, and in all our endeavors we have enjoyed the full cooperation of the parent body.

Our state officers and chairmen conform in the most part to those of the American

and Southern Medical Associations. All departments of our work are headed by interested and enthusiastic women who have had, in most cases, splendid cooperation from the county presidents and chairmen. The officers follow:

### PRESIDENT

Mrs. Lee Wright Roe ..... Mobile  
16 South Ann Street

### PRESIDENT-ELECT

Mrs. Neal Wood ..... Birmingham  
Edgewood Lake, Route 2

### FIRST VICE-PRESIDENT

Mrs. G. O. Segrest ..... Mobile  
1906 Dauphin Street

### SECOND VICE-PRESIDENT

Mrs. T. F. Huey ..... Anniston  
1122 Christine Avenue

### THIRD VICE-PRESIDENT

Mrs. G. D. Waller ..... Bessemer  
1720 Greenville Avenue

### FOURTH VICE-PRESIDENT

Mrs. Andrew G. Finlay ..... Guntersville

### CORRESPONDING SECRETARY

Mrs. J. Mac Bell ..... Mobile  
Flo Claire

### RECORDING SECRETARY

Mrs. D. J. Coyle ..... Birmingham  
2907 13th Avenue, South

### TREASURER

Mrs. A. M. Cowden ..... Mobile  
2314 Springhill Avenue

### AUDITOR

Mrs. John Wilson ..... Mobile  
13 North Reed Avenue

### HISTORIAN

Mrs. H. R. Cogburn ..... Mobile  
2505 Springhill Avenue

### PARLIAMENTARY REFEREE

Mrs. E. H. Hargis ..... Birmingham  
1231 32nd Street, North

### ADVISORY COUNCIL

Dr. Douglas L. Cannon ..... Montgomery  
Dr. James L. Jordan ..... Huntsville  
Dr. J. D. Perdue ..... Mobile

### COMMITTEE CHAIRMEN

#### Press and Publicity

Mrs. H. W. Gray ..... Mobile  
11 Semmes Avenue

#### Public Relations

Mrs. Ralls M. Coston ..... Birmingham  
1429 South 10th Place

#### Lettie Daffin Perdue Fund

Mrs. Fred Denson ..... Bessemer  
Care of Woodward Ore Mines

*Revisions*

Mrs. J. U. Reaves..... Mobile  
1826 Government Street

*Program*

Mrs. Seale Harris..... Birmingham  
2334 Highland Avenue

*Hygeia*

Mrs. M. M. Duncan..... Huntsville  
Franklin Street

*Jane Todd Crawford*

Mrs. E. M. Norton..... Fairfield  
674 Maple Street

*Archives*

Mrs. Toulmin Gaines..... Mobile

*Research of Medicine*

Mrs. C. L. Salter..... Talladega

*Memorial*

Mrs. W. G. McCown..... Huntsville  
Locust Street

*Recommendation:* That all county presidents urge their publicity chairmen to cooperate fully with the State Chairman of Press and Publicity, furnishing a monthly report of the activities of their respective auxiliary that we may bring about a greater knowledge of the activities of each, which, after consolidation, will result in an extension of our aims and purposes.

*Recommendation:* That Article IV, Section L, in the By-Laws be amended to include county presidents on the Executive Board.

*Organization:* We now have ten county auxiliaries. One new county has been organized this year with fifteen paid members for two years. There are five members-at-large from unorganized counties which we hope will soon organize. The weak counties have disbanded.

*Program:* The chairman of this committee has been very active and sincere in her efforts. Self-education and other matters directly affecting those connected with the medical profession were stressed, and the county programs were formulated with the same thought.

Alabama has for the first time an official health program. There are sixty-seven counties in Alabama; fifty-seven have all-time health departments. Ten auxiliaries have been active in health educational programs.

*Public Relations:* Several of our auxiliaries have helped put on the Seal Sale, and

one auxiliary put the whole Seal Sale on for its county very successfully. One auxiliary operated a booth and sold more seals than any other organization, winning a cash prize for so doing, which was generously turned into the Seal Sale Fund. Mobile County Auxiliary sponsored a preventorium; other auxiliaries aid their local hospitals by donating linens and helping with the entertainment of their nurses. Calhoun County Auxiliary put on the graduating exercises and entertainment for the class graduating from their hospital.

Suggestions for cooperation between medical auxiliary and parent-teachers associations in summer round-up programs were sent to each county president.

## WE SERVE FROM AMERICAN MEDICAL ASSOCIATION

So well did the organizers of medical auxiliaries plan, that policies and objectives have required no changes. The definite reasons for a national auxiliary in 1932 are more necessary today, because of the rapidity in exchange of information, in the shifting of public opinion, in complacent self-diagnosis, and the desire to regain health without always paying for it.

An auxiliary is an autonomous unit, which accepts recommendation when it accepts membership in State and National Auxiliaries. It is not a woman's club, but a service group to its medical society. To truly serve an organization, we must do those things which please it and forward its interests. So an auxiliary requires an auxiliary committee to direct and lead it, and unless it does the work assigned it is useless. It cannot rely on guesswork, nor speak and act upon policies except under the authority of its society.

While a member is eligible through her husband, it is not the individual doctor she serves, but his profession. Through the unit of the auxiliary, she partakes of the duties which advance the aims of the medical profession and medical arts. Is such work necessary? It is.

Many auxiliaries engage in philanthropic and social work assigned them, but the particular task is that of education of the public in accepting health leadership from the medical profession. There are certain facts in the prevention and control of disease which the public may and should have. Caring for the ill leaves little time for the



care of the well, yet the profession earnestly seeks, not only to defend human life, but to surround it with safeguards through education. Its fortifications are built on truth, and its plans contain no secrets. But is truth always attractive? Does it boast, does it guarantee all results, does it promise refunds? Never. Consequently it is bombarded by misinformation, and by deliberate misinterpretation of those who prey on the public credulity. The busy physicians cannot give all their attention to the promulgation and defense of the truth. Where can they find lay assistance? In those who believe in them and who are willing to follow their leadership. Shall they go out among strangers, or shall they seek those nearest? The public is determined to listen to someone, and those who associate with it have the best opportunity to speak. Doctors' wives are lay people, but they are the ones who share their lives and know their labors and sacrifices. Isn't it natural that they should be the reliable member of the laity to carry out the aims of the profession?

True, marriage to a physician does not confer that information which enables a wife to accept lay-leadership in health activities but it does imply loyalty and respect. As an individual wife, one may be accused of promoting her husband. As a member of a medical auxiliary she works under control of the organized medical profession, and personalities are banned.

But through attendance at auxiliary meetings, we learn the history of medicine, the necessity for health education, and the methods of promulgating it, so that it may be untrammelled by lay opinions and serve the public for its best interests. Thus informed, we learn procedure, and become participants in public relations as members of organized groups. In them discussions and projects come to our attention, sometimes through gossip, or through positive opinions given at meetings. Many times these are not merely bits of misinformation or misguided efforts bandied by people eager "to do something," but frequently are in direct contradiction to every ideal, every practice the profession seeks to establish. Directed by our advisors, we render service among these groups that can offset many activities in opposition to the medical profession and tactfully direct

them, so that they come to it for advice, for speakers, for material.

We know that some members cannot give their time each year to public relations but, we believe, each member should have information which will enable her to assist in it at any time. We know the work is essential to public welfare. The question each auxiliary member should ask herself is—"Shall I assist the medical profession, or shall others chart the work and assume control?"

*Education:* Our state project is the Lettie Daffin Perdue Scholarship at Alabama College, Montevallo. This scholarship is named for a beloved deceased past-president and each auxiliary contributes generously to this fund. This scholarship is used for some doctor's daughter who would not otherwise have this advantage. Memorials and special gifts have added to the scholarship fund.

*Hygeia:* The chairman of this committee has been active and sincere in her efforts to spread the interest in Hygeia. Many sample copies have been distributed in the counties. A form letter has been sent each county president and member-at-large with a list of suggestions to aid them in securing Hygeia subscriptions, and ways and means to make money to purchase subscriptions of Hygeia to be placed in public schools and libraries. Mobile County has placed six subscriptions of Hygeia in public schools and libraries.

*Research of Medicine:* Several of the county auxiliaries have used papers from the Lending Library Research Committee of Women's Auxiliary to the Southern Medical Association, as "What a Doctor's Wife Should Know," and "What the Wife Means to the Physician." Doctors' Day was observed by Jefferson County Auxiliary with an impressive candle lighting.

*Archives:* Splendid work is being done by our Chairman of Archives with county and state reports put in order and on file.

*Press and Publicity:* Activities of the Auxiliary have been published in the Alabama State Medical Journal and local newspapers. The minutes and reports of the Thirteenth Annual Meeting held in Kansas City and the Bulletin of the Woman's Auxiliary

to the Southern Medical Association were received and distributed to the officers.

By the aid of questionnaires we have found that two-thirds of our members take part in philanthropic and civic work in their communities, and one-third of this number are acting as officers in these groups. They have been instrumental in putting on health programs in their various clubs.

Realizing that we must not neglect the social part of our program, banquets, luncheons, teas and many clever and original parties have brought our membership together.

One of our special aims this year was to enlarge our membership, and reenlist former members, who have fallen out during depression, and this has been done in nearly every county.

Two-thirds of our year have passed, and we hope the many objectives will be accomplished by the time of our annual meeting in Birmingham, in 1937.

---

## Medical News

*(Secretaries of county medical societies and other physicians will confer a favor by sending for this section of the Journal items of news relating to society activities.)*

The Northwestern Division of the Association met in Jasper on January 8th under the vice-presidency of Dr. Merle E. Smith and with the Walker County Medical Society as host. Essayists included Dr. Daniel C. Elkin of Atlanta—The Diagnosis and Treatment of Wounds of the Heart; Dr. A. M. Walker, Tuscaloosa—Sinuses from Today's Aspect; Dr. W. W. Alexander, Florence—The Post-Paralytic Management of Anterior Poliomyelitis; Dr. O. P. Board, Birmingham—The Diagnosis and Treatment of Peripheral Vascular Disease; and Dr. L. C. Davis, Gordo—The Treatment of Lobar Pneumonia.

\* \* \*

According to information received by the Secretary of the Association, Cullman County offers an attractive location for a physician who desires to do rural practice. Further details may be had from any member of the Cullman County Medical Society.

\* \* \*

Dr. E. B. Bailey, Demopolis, an Active Counsellor of the Association and Presi-

dent of the Marengo County Medical Society, died on January 5th.

\* \* \*

The Town of Banks in Pike County is interested in procuring a resident physician. Any one desiring to investigate the possibility may obtain full information from Mr. J. W. Smith at Banks.

\* \* \*

During 1937 the American College of Surgeons is planning a sectional meeting to be held in Atlanta, Georgia, on February 3, 4 and 5. Headquarters will be at the Atlanta Biltmore Hotel, and the following states will participate: Georgia, Florida, North Carolina, South Carolina, Tennessee, Alabama, Mississippi and Louisiana.

The meeting will be of interest not only to Fellows of the College but to the medical profession at large. In addition, hospital trustees, superintendents, nurses and other hospital departmental personnel are invited to attend the hospital conference. There will be no registration fee.

\* \* \*

The New Orleans Graduate Medical Assembly will be initiated March 8-11, 1937. The Program Committee states that "if you would like to discuss some of your problems with the originators of the newer concepts in medicine and surgery; if you desire to enrich your clinical experience by seeing hundreds of cases collected especially to illustrate the most recent advances in medicine; if you would like to learn the most recent diagnostic, therapeutic and technical procedures directly from recognized authorities on these subjects, then the New Orleans Graduate Medical Assembly offers an unparalleled opportunity for furthering your medical education."

Speakers will include Dr. R. M. Walters of the University of Wisconsin Medical School; Dr. A. Benson Cannon of Columbia University; Dr. A. C. Furstenberg of the University of Michigan Medical School; Dr. Anthony Bassler of the New York Polyclinic; Dr. Frank Lynch of San Francisco; Dr. Russell Cecil of Cornell; Dr. George Piersol of Jefferson Medical College; Dr. John A. Kolmer, Philadelphia; Dr. Julius Hess, Chicago; Dr. C. B. Walker, Los Angeles; and Dr. M. F. Campbell, Clinical Professor of Urology, New York University College of Medicine.



# THE JOURNAL

OF

The Medical Association of The State of Alabama

Published Under the Auspices of the Board of Censors

Vol. 6, No. 8

Montgomery, Alabama

February 1937

## FACTORS IN AUTOMOBILE ACCIDENTS\*

### FATIGUE, DISEASE AND ALCOHOLIC BEVERAGES

By  
SEALE HARRIS, M. D.  
Birmingham, Ala.

In the year 1935 more people were killed in automobile accidents in the United States than died of typhoid fever, malaria, measles, scarlet fever, diphtheria and infantile paralysis. Suppose that any, or all, of the above preventable diseases, in one year, should cause the death of 36,400 persons and produce illness in 864,000 others, many of whom became permanently crippled, what would our health authorities do about it; and how much money would the United States, the states, county, and city governments spend to stamp such diseases out of existence? It seems probable, if the problem is properly approached, that the automobile mortality and injury rates may be reduced relatively as much as the death and sickness casualties from typhoid fever, malaria, measles, scarlet fever, and diphtheria have decreased as a result of the measures that have been adopted by our health authorities in pre-seventing these communicable diseases.

The cardinal principle in the prevention and treatment of disease is to find the cause and remove it. In discussing the methods for reducing the number of automobile accidents, we shall endeavor to apply the scientific method by pointing out some of the causes of motor traffic casualties, with suggestions for their prevention. Fatigue, certain diseases and alcohol are factors which, when understood by the public and avoided, will prevent many road tragedies.

### FATIGUE

*Loss Of Sleep:* Railroad officials in studying the human hazard as a cause of wrecks found that clear heads of every employee who had anything to do with running the trains are necessary to prevent accidents. In investigating the causes of railway accidents it was found that loss of sleep was a factor in many train wrecks; so that the rule was adopted that no employee in their transportation departments could work more than a limited number of hours overtime in one day.

The case of a freight engineer who thirty years ago had been doubled back and forth on trains for 36 hours is recalled. He had orders to go into a siding at a station, but, having fallen asleep for a few minutes, he passed the switch, and had a head-on collision with a passenger train, and 20 people were killed.

Likewise many serious automobile accidents have been due to loss of sleep, the drivers having dropped to sleep momentarily and plunged into ditches, hit trees or telephone posts, or had head-on collisions with other cars. Officials and owners of bus and truck lines may aid in reducing road accidents by demanding that their employees have sufficient sleep before going out on their runs; and by adopting the same rules regarding their employees working overtime that have been in use by railroads for nearly half a century.

Congress, in passing the eight-hour working day, also provided that it shall be unlawful for any employee who has anything whatever to do with a train to work longer than 16 hours a day. There can be no question but that this law has prevented many railroad wrecks. The national government should enact laws controlling the number of hours a day that drivers may work on truck lines engaged in interstate business that have existed for many years. Likewise states should enact similar laws for automobile transportation companies

\*An address delivered before the Alabama Hospital Association, Montgomery, Alabama, April 10, 1936.

engaged in intrastate freight and passenger traffic.

Probably no law can limit the number of hours that an individual may drive his own automobile, but he can learn that there is a limit to his endurance; and that, when he has lost sleep the night before a trip, he should take a cup of coffee, or a soft drink containing caffeine every three hours while traveling. I would not be understood as advising any individual to drink coffee, tea or the caffeine soft drinks regularly; because when taken to excess, they are very harmful to the digestive and nervous systems. The rational thing to do is not to drink them at all, if one has had eight hours sleep and to reserve them for use when one has lost sleep.

Eight or nine hours rest in bed the night before an automobile trip, and a maximum of 8 or 10 hours a day at the wheel will prevent the drowsiness that may precede "sudden death."

Fatigue is the foe of quick and accurate thinking; and when one is mentally or physically tired he cannot act quickly as in an emergency that may confront a person at any moment when driving an automobile. Industrialists have known for many years that a larger proportion of accidents in their factories occur late in the afternoon when their employees are tired from the day's work.

Automobilists frequently boast of driving for 18 to 24 hours without stopping; and brag of having driven 600 or 800 miles in a day and night. They do not realize how near to "sudden death" they are when they strain the limit of their endurance by remaining at the wheel until they become so fatigued that they are incapacitated to act quickly and accurately when an emergency occurs.

We recently saw a truck that was completely ruined, in which the driver had been at the wheel for a day and night between St. Louis and Birmingham. Several horses were killed and the driver barely escaped with his life when his truck ran into a ditch and overturned.

Recent statistics regarding automobile accidents show that a large proportion of them occur late in the afternoon and at night. No doubt alcohol is a contributing factor in many such accidents; but persons

driving automobiles should be particularly careful to avoid fatigue.

*Decreased Blood Sugars:* Dr. Howard W. Haggard, Professor of Applied Physiology in Yale University, whose vocation is to apply the known facts in physiology to increasing human efficiency in industry, has recently shown ("Diet and Physical Efficiency," Yale University Press) that the average man or woman is most efficient when he takes food every three hours. He believes that the reason more accidents occur among employees in various industries at from four to six hours after meals is partly because their blood sugars are lowest daily at that time.

There can be no question either of the accuracy of Dr. Haggard's work, or of the soundness of his conclusions. Applying his findings to persons driving automobiles, they may increase their efficiency and decrease their accident hazard when driving by taking an orange, apple, banana or glass of milk between meals; and eating three moderate or small meals a day. Overeating tends to drowsiness so that the automobilist should not eat too heartily at any meal when on a long trip.

#### DISEASES THAT MAY BE FACTORS

Persons afflicted with various diseases should be particularly careful about driving. Sudden illness of any kind, as a heart attack, a stroke of apoplexy, the onset of pneumonia, influenza, cerebrospinal meningitis, encephalitis, a malarial chill or uremic coma in a person driving an automobile, may be the cause of an accident. Therefore a driver who has had even a slight automobile accident should be examined carefully and thoroughly by a physician; and if he is afflicted with a disabling malady, he should not be allowed to drive until he has completely recovered from his illness. A blood examination at the time of an accident may reveal the cause of the illness that caused the wreck.

Epilepsy, fainting attacks or other similar maladies should disqualify the afflicted individual from driving an automobile. If, when a physician examines a driver after an automobile accident, he finds that he has epilepsy, either in the mild or severe forms, or other chronic diseases characterized by sudden attacks of unconsciousness, or mental lapses, his license should be revoked.



While this article was being prepared, a press dispatch from Knoxville, Tennessee, announced the death of two people in an automobile, the driver of which became suddenly ill and his machine struck a tree. There must be many similar cases, though up to the present time there are no statistics showing the proportion of automobile accidents due to illness of the driver.

It occasionally happens that an insane person will run amuck with an automobile; one such case is recalled in which a man, who had been a patient in an insane hospital, wrecked several automobiles before he was arrested. Certainly no person who has ever been in an insane hospital should be given an automobile license, except on the advice of the superintendent of the institution in which he had been confined.

There is one form of insanity known as paresis in which the victim would be particularly prone to automobile accidents. A paretic may appear perfectly normal after an accident or a crime, but an examination of his blood may give the clue to a diagnosis which can be confirmed by neurologic examination. If it is proved that an individual has paresis he should be confined in a state or private hospital to prevent his becoming a menace on the public roads. It should be added that finding a positive blood Wassermann is not sufficient proof upon which to revoke an automobile driver's license; because uncomplicated syphilis may not cause the victim to become incapacitated, physically or mentally, to drive an automobile. If, however, neurologic tests in such an individual show that he has locomotor ataxia, or paresis, his driver's license should be revoked.

*Diabetes And Hyperinsulinism:* With the proper diet and the use of insulin there is no reason for uncomplicated diabetes to interfere with the efficiency, or shorten the life, of a diabetic. The diabetic, however, who does not follow the proper diet, may develop acidosis and become drowsy or go into coma while driving an automobile. Likewise, unless the diabetic's insulin dosage is adjusted to his diet he may go suddenly into hypoglycemia, when, on account of a low blood sugar, his vision is impaired or he becomes partially or totally unconscious and an automobile accident may occur. In fact, a number of such accidents have been reported.

Dr. Joslin of Boston, in the last paragraph of his new book for diabetics, cautions them about driving automobiles unless another person is in the car with them. When it is remembered that there are more than a million diabetics in the United States this factor should be considered in preventing automobile accidents.

A number of automobile accidents have been reported as having occurred in persons who had hyperinsulinism, the opposite condition to diabetes, in which the symptoms, i. e., weakness, disturbed vision, dizziness and sudden attacks of partial or complete unconsciousness, result from low blood sugars. In some of the cases the victims did not know they had the disease until their blood sugars were examined after an automobile accident. One such case occurred in Birmingham in which a prominent surgeon was called to see a truck driver, who drove through traffic lights and had unconscious attacks. He found that the man had a very low blood sugar. His employer gave him another job that did not require driving an automobile. The person who has hyperinsulinism should not be allowed to drive an automobile until he is cured.

Physicians may aid in preventing automobile accidents by warning their patients, who have diseases in which sudden attacks occur, of the danger to them and to others on the public highways and roads if they are allowed to continue their driving. This phase of the subject is of sufficient importance to make it advisable for a physician to be called in immediately in every automobile accident, even if slight and no one is injured; because, if the driver of the automobile is afflicted with one of a number of diseases, he would be a potential source of danger to himself and to others if allowed to drive a car on the public highways. Certainly no person who is afflicted with a disabling disease should be allowed to drive an automobile until his malady has been cured.

That the human hazard is the most important factor in the production of automobile casualties is evidenced by the fact that with more and better paved roads and with the marvelous improvements in automobile machinery, including dependable brakes and other safety appliances, the number of road accidents increases each year.

The various states of the Union may reduce the human hazard in automobile accidents if they will profit by the experience of the railroads, and require a physical examination of every person before he is licensed to drive an automobile on the public highways. Likewise before a driver's license is renewed each year, the applicant should present a certificate from a reputable physician showing that he is not afflicted with any disease or condition that could affect his ability to handle an automobile in an emergency.

#### THE ALCOHOL (BEER AND WHISKEY) FACTOR

Since accurate, dependable and inexpensive methods of determining the alcohol content of the blood and urine of persons who may have been drinking have been perfected, it is now possible to approximate the amount of alcoholic beverages an individual has taken before an automobile accident (Heise, *Am. J. Clin. Path.* 4: 182-188, March '34). The driver may appear to be partly sobered by an accident, or he may be able to walk and talk so that no one would suspect that he was drinking; yet examination of his blood and urine would show that he had had enough alcohol to render him an inaccurate and, perhaps, a careless or reckless driver.

It is generally accepted by physiologists, psychologists and physicians, who have studied the reactions, and the alcohol content of the blood, of persons following the ingestion of 1 or 2 cocktails or highballs, or 1 or 2 bottles of beer, that an individual with more than 0.01 per cent of alcohol in the blood is more dangerous on the road than the man who is dead drunk. The persons who have 0.02 per cent of alcohol in their blood may not be visibly intoxicated; but the persons who have 0.05 per cent of alcohol in their blood are usually unconscious. Even if a person is killed in an automobile accident, if he has been drinking, a specimen of his blood, obtained within a few hours after the accident, will show approximately the degree of his intoxication when the accident occurred.

Dr. Heise, in a preliminary investigation of fifty consecutive automobile accidents studied in Uniontown, Pennsylvania, reports as follows:

Alcoholic accidents, 32; Injured, 71; Killed, 4.  
No alcohol involved, 18; Injured, 23; Killed, 0.

This table shows that in these 50 consecutive automobile accidents 64 per cent were considered of alcoholic origin; and 36 per cent, in persons who had taken no alcohol. Of the total number injured (94), 75 per cent were in cars with alcoholic drivers, and 25 per cent were in cars with sober drivers. All of the 4 deaths in the 50 accidents were in cars with alcoholic drivers, and no fatalities occurred among occupants of the cars in which alcohol was not a factor in the accident.

There is no reason why more drivers of motor cars should drink in Uniontown, Pennsylvania, than in the average community in the United States; but, on the contrary, probably a larger per cent of the population in the larger cities drink alcoholic beverages because they are more convenient to places in which beer and other intoxicants are sold, and there are more people in the cities who have the money to buy drinks and automobiles. There can be little doubt that most of the fatalities and injuries from automobile accidents occur when there is the combination of alcohol in the driver and gasoline in an automobile engine.

*The Slaughter After "Cocktail Hour" And Liquor Parties:* In a later and more comprehensive study of a larger series, Heise (*J. A. M. A.* 103: 739, Sept. 8, 1934) found that, in 119 consecutive automobile accidents, 74 drivers had sufficient quantities of alcohol in their blood and urine to account for the accidents, while no alcohol, or very small quantities, was found in the blood of 41 drivers. In the 74 alcohol accidents, 155 persons were injured and 10 were killed. In the 45 non-alcohol accidents only 44 persons were injured and 7 were killed.

It is significant that in this series of 119 consecutive automobile accidents more wrecks occurred from 11:00 P. M. to 1:00 A. M., after liquor parties, at a time when there are comparatively few automobiles on the streets and roads, than in nine hours, from 6:00 A. M. to 5:00 P. M.—during the busiest part of the day when the streets and roads are thronged with cars of every description.

Beginning at 5:00 P. M., after the "cocktail hour," accidents begin to increase and from 6 to 7 P. M. there are more casualties



than during any other hour of the day. Can anyone doubt that social drinking is the most important factor in this orgy of death and mutilation of bodies that takes place all over the United States from 5:00 P. M. to 1:00 A. M.?

From 6:00 A. M. to noon, at a time when the traffic of business vehicles is heavy, there were only 8 accidents, 7 of which were in alcoholics. Few people drink in the mornings but as the day progresses the non-alcoholic accidents decreased and the alcoholic injuries and fatalities increased.

That "joy riding," when alcohol and death are often at the wheel, is an important factor in automobile accidents is shown by the fact that in Heise's study of 117 cases there were more accidents, with twice the number injured and killed, from Saturday at noon to midnight Sunday, than for the other five and one-half days of the week. On Saturdays and Sundays the number of alcohol accidents was 3 times as many as in the non-alcohol groups; and the persons killed were almost eight to one.

Of the "hit and run" accidents, due to the folly of the most despicable and the most cowardly drivers on the streets and highways, 7 out of 10 were found to have varying degrees (from 0.021 to 0.035 per cent) of alcohol in their blood. The other three were not captured.

Heise also found that drinking pedestrians, with an average of 0.020 per cent of alcohol in their blood, were injured or killed in a number of accidents, though the drivers who hit them had an average of 0.014 per cent of alcohol in their blood.

It may be true that many others driving over the same roads had taken as many drinks as those who had the accidents. That does not discredit the value of finding alcohol in the blood of those who had accidents. The drinking drivers who escaped accidents simply had the good luck not to have the emergencies that overtook those who had the wrecks.

Certainly thousands of drivers of motor cars who have had one or more drinks do not have wrecks. Sober drivers usually keep out of their way, but the drinking driver, when the emergency occurs requiring quick and accurate thought and action, will be less apt to do the thing which will prevent an accident than if he were not under the influence of alcohol. Someone has

said that the man who has taken one drink or one bottle of beer is one-tenth as drunk as the man who has taken the 10 drinks or the 10 bottles of beer that will knock out the average drinker; so that the man who drinks at all is not as safe a driver of a motor car as he would be if he were a total abstainer from alcoholic beverages.

*The Psychology Of Alcoholic Motor Accidents:* Dr. Walter R. Mills, Professor of Experimental Psychology, Yale University, in discussing "Alcohol and the Psychology of Accidents," makes an unanswerable scientific statement regarding the relation of alcoholic beverages to automobile accidents. He says: "Alcohol accidents seem an avoidable loss if humans would generally recognize that alcohol anesthetizes and depresses the higher mental functions. The omnipresent motor car is unfortunately a mechanism through which the alcoholized brain and nerve centers of an even slightly intoxicated driver may function in a manner the more dangerous because it often passes unrecognized. It has been adequately shown that alcohol taken without food, in amounts not exceeding 30 cc. (the equivalent of two drinks of whiskey or two bottles of beer), produces a sufficient depressive action in most people to interfere somewhat with various mental functions; vision is impaired; the field of attention is narrowed; mental associations are slowed; and even if sleepiness is not produced the attentive consciousness tends to be so occupied with subjective feelings and thoughts that the individual is not easily aroused by the noises, lights or movements in his environment."

Dr. Mills adds: "All the king's horses and all the king's men can't possibly change the position of road curves, fences, telephone poles, and railroad crossings often quickly enough to meet the changing intentions of drivers who are under the influence of alcohol."

*The Moderate Drinker The Most Dangerous:* Dr. Richard Cabot, Clinical Professor of Medicine, Harvard University, says the moderate drinker is the most dangerous person at the wheel of an automobile. Dr. Cabot's comments on drinking and automobile accidents should be read by every man who takes even one drink and then drives an automobile.

"Probably more serious than any of these effects of alcohol is the number of automobile accidents due to clumsiness and recklessness of those ordinarily called 'drunken drivers' although their drunkenness has only reached the stage which makes them careless and unskillful and may have been produced by only one or two cocktails. The person has no idea he is drunk and would not be recognized as such under ordinary conditions. There is no safety for children on our roads until all those who drive automobiles can be prevented from taking a drink within six hours of the time when they go on the streets to drive.

"Of course, there is no possibility of this except under prohibition. It should be emphasized that these automobile accidents are due to the moderate—what is ordinarily called temperate—use of alcohol in amounts that would not disturb a man's speech or power to walk. It is noticeable in no way until it comes to handling such a machine as an automobile which demands quick and accurate cooperation of eye and hand, the accurate coordination of which is upset by even a moderate use of alcohol. Temperate drinking is thus more dangerous than excessive drinking as a cause of automobile accidents. The excessive drinker doesn't usually drive when he is drunk. There is no hope, therefore, of decreasing automobile accidents by working for temperance. Only abstinence can make us safe."

*A Drink Or Two—And Safe Driver A Menace:* Under this title, in discussing the terrible toll of motor accidents in the United States, Dr. Morris Fishbein, Editor of the Journal of the American Medical Association, said: "The greatest menace in this reign of slaughter is the drinking driver—not the drunk, mind you, according to one high authority—as extensive experiments conclusively show.

"When your car is moving at a speed of 60 miles an hour, you are traveling 88 feet a second. A person reacts in about one-fifth second to what he sees or hears, psychologists reveal. This is known as the reaction time. When the mind is controlled by alcohol, this time may be slowed to two-fifths second, or even much slower.

"If you lose one-fifth second in deciding what to do, you have traveled 18 feet, or 36

feet if you lose two-fifths second. Either of these distances may mean the difference between safety and crippling or death."

Dr. Fishbein adds: "In Stockholm, Sweden, where they determine the actual amount of alcohol in the blood, 41 per cent of all men admitted to the hospital because of accidents were found to have alcohol in the blood.

"In Great Britain, authorities feel that it is just as culpable for men to drive motor cars while drunk as it would be for an engineer to attempt to run a train while under the influence of alcohol."

*Alcohol And Automobile Accidents In Germany and England:* The problem of the intoxicated automobile driver is not confined to the United States. The Berlin correspondent to the Journal of the American Medical Association (Jan. 18, 1932) called attention to the "numerous traffic accidents occurring in recent months that have been due to intoxicated drivers. It is emphasized that a small amount of alcoholic beverages is sufficient to reduce materially the steadiness, the keenness of observation and the reaction time of the driver. In the future, every driver of an automobile vehicle who causes an accident as a result of the ingestion of alcoholic beverages will without exception be deprived of his license."

If the traffic rules of the Berlin, Germany, police were applied to all automobilists in the United States, our roads would be safer for sober motorists. They are as follows:

1. The arduous and responsible calling of the motor driver makes it necessary for him to abstain completely from all alcoholic beverages, both before and during his work.
2. The smallest quantities of alcohol are injurious for the motor driver. It is a widespread error that small quantities of alcohol have no deleterious effect. On the contrary, they cause at first an increase of self confidence, followed by premature fatigue, and thus weaken his capacity for swift discrimination and reaction in the presence of danger.
3. A large proportion of motor accidents is due to the consumption of quite small quantities of alcohol.
4. Larger quantities increase the danger, and lead finally to intoxication and rash and foolish actions.
5. The license will be refused in all cases to persons inclined to intemperance.
6. While under the influence of alcohol, driving is strictly forbidden. Any driver found to be in a state of intoxication during his work will be placed



under arrest and his car taken in charge by the police. If he is proven to be drunk his license will be withdrawn.

7. The most serious accidents occur in the case of so called "joy rides," in which alcohol regularly plays a part. In these cases the driver is liable to a heavy penalty and the withdrawal of his license.

8. Every driver who does not totally abstain from the use of alcohol is not only a danger to himself and his fellows but brings misfortune to his family.

The London correspondent of the Journal of the American Medical Association (Sept. 7, 1935) writes regarding "alcohol and road accidents" as follows:

"In 1933 there were in Great Britain 1,595 convictions for driving under the influence of drink. In 1934 there were 2,016 drivers of motor vehicles medically certified to be under the influence of drink. The committee submits evidence as to the effect of what it calls 'subintoxicant' amounts of alcohol, and refers to the report of the Medical Research Council on alcohol, in which the conclusion is drawn that 'the direct effects of alcohol upon the nervous system, in all stages and upon all parts of the system, are to depress or suspend its functions, that it is, in short, from first to last, a narcotic drug. It leads many persons to take risks and make rapid decisions less judiciously than they otherwise would. This is a serious objection to the consumption of even small amounts by any one who is to drive a car.'"

*The Medicolegal Value Of Alcohol Tests In Motor Accidents:* Since accurate, dependable and inexpensive methods of determining the presence of varying quantities of alcohol in the blood and urine have been worked out, it would seem that such tests would be of great value in deciding whether or not the driver of a motor vehicle in a wreck was sufficiently under the influence of alcohol to make him an unsafe driver. Without such tests it is obviously difficult to prove that the driver of an automobile was intoxicated at the time of the accident.

The medicolegal aspects of the drinking driver has been discussed by Heise and Halporn in a paper read before the Pennsylvania State Medical Association and published in Pennsylvania Medical Journal, December 1932. They employed their method of examining the blood and urine of 200 individuals charged with drunken driving. They are convinced that the chemical test is of definite corroborative value in confirming, or disproving, that a driver was drinking at the time an accident occurred. They conclude that the corroborative value of the test for alcohol "is at least as great

as is the Wassermann test for syphilis, and furnishes the only constant finding in all cases of alcoholic intoxication.

"The test for alcohol in body fluids furnishes a practical confirmation of the fact that a minimum amount of alcohol has been consumed, and thus assures the examining physician of some degree of protection in our courts.

"Persons suffering from conditions simulating alcoholic intoxication are protected by the test.

"Confirmation of the findings of physical examination by the chemical test increases the number of convictions in court."

As proof that the alcohol test is of value in convicting drinking drivers in automobile accidents, Heise and Halporn cite results obtained in two counties in Pennsylvania:

"In Fayette County, in 1924, before the chemical test was used, 34 persons accused of drunken driving were not found guilty and 21 found guilty or plead guilty. In 100 recent consecutive cases in which the alcohol in the urine exceeded 0.19 per cent by weight, 87 were found guilty or admitted guilt, 6 were pronounced not guilty but paid the costs (meaning "You are not guilty, but don't do it again"), and 7 were acquitted."

Butler County was unable to get one conviction in 1930, but a recent communication from E. H. Negley, district attorney, states, "The chemical test for alcohol was used in 20 of the 36 cases. During the past 6 months it is used in every case unless the defendant at once pleads guilty. We have not lost a case in which it is used, and it seems to me impossible to lose a case in which it is used."

The tests for alcohol in the blood and urine are simple and inexpensive and if city and state laboratories, as well as those in private hospitals, are equipped to make them, they may be utilized by legal authorities to produce evidence to convict drinking drivers who have injured or killed others in automobile accidents. The widespread use of this test will also give additional information regarding the frequency of automobile accidents as a result of the use of alcoholic beverages. The educational effects of such tests will be wholesome. When motor drivers become convinced of the dangers from the use of beer, wine, or whiskey before, or while they are at the

wheel, the wise ones will become total abstainers.

*Make The Punishment Fit The Crime:* It is important to find out just how many people are killed and maimed every year by drinking drivers. This information may be ascertained by requiring the police, or county or state traffic or other law enforcement officers, to escort to a hospital, by persuasion if possible, or by force if necessary, the driver of an automobile, or the drivers of all cars involved in street or road accidents, to have specimens of blood and urine examined to determine their alcohol content.

Chemistry does not lie, as will the average frightened drinking driver of an automobile after an accident. By means of simple and inexpensive tests it can be determined with a considerable degree of accuracy the amount of alcohol a driver has consumed in the last six or eight hours before an accident.

Since it seems probable that more than half the automobile accidents occur when drinking—not completely drunk—drivers are at the wheel, the blood and urine of the driver of any motor car, who has an accident or who drives through red traffic lights, or is caught speeding, or driving recklessly, should be examined for alcohol content. If an automobile driver is under suspicion of having had one or more drinks of beer or whiskey and he is innocent of having imbibed on alcoholic beverages that make him a menace on the streets or public highways, the blood and urine test for alcohol will prove his innocence. If, however, the test shows that he has committed the crime of driving while under the influence of alcohol he should be punished; and “the punishment should fit the crime.”

If the accident is a serious one, with one or more innocent people killed or seriously wounded as the result of a driver's drinking, he should be convicted and punished for manslaughter; and he should forfeit his license to drive an automobile for the rest of his life.

If the accident traced to a drinking driver is a minor one, or if he violates such traffic ordinances as disregarding a stop light or stop signals, or if he is found guilty of speeding, or driving recklessly, he should be fined, and his license to drive an automobile revoked for six months or a

year. At the end of that time if he will take a pledge to abstain from the use of all alcoholic beverages, he might be given a driver's license, on probation, to report every month, or at least once a year for examination of his blood and urine to determine whether or not he has been living up to his pledge. If he is convicted the second time for violating traffic ordinances while drinking, his driver's license should be revoked for life.

#### THE REMEDY

The cardinal principle in the prevention and treatment of disease is to find the cause and remove it. Some of the causes of automobile accidents have been pointed out; and suggestions are submitted, which, if adopted wholly or in part, will reduce the number of traffic accidents.

1. An active campaign of education should be instituted to teach professional and amateur drivers of motor cars the necessity of keeping mentally and physically fit for driving a powerful machine like an automobile. The following items of personal hygiene should be stressed:

(a). Every person driving an automobile should have eight or nine hours' rest in bed at night; or during the day, if he has a night run on a bus or truck. If one has lost sleep before driving an automobile, he should have a cup of coffee, or tea or a soft drink containing caffeine every three hours when driving.

(b). Six or eight hours a day at the wheel should not be exceeded, except in emergencies; and no driver of any automobile, bus or truck should be permitted to drive more than 12 hours—actually at the wheel—in an automobile or truck during one day and night.

(c). Three small meals a day and a banana, orange, apple, or other fruit; or milk, or a sandwich, about three or four hours after meals, will increase the efficiency of the driver of an automobile, bus or truck.

2. Rule G, which prohibits the use of intoxicants and narcotics among railroad employees at all times, whether on or off duty, if applied to all drivers of automobiles, busses and trucks, will reduce the number of automobile accidents by probably fifty per cent. The teaching of moderation and temperance in the use of alcohol,



which is always a depressant, narcotic, habit-forming drug, will not decrease, but probably will add to the number of automobile accidents. Voluntary or enforced total abstinence by drivers of motor vehicles is the only safe method of preventing alcohol accidents on the streets and public highways.

3. Every driver of a motor car who has an accident or who violates the traffic laws by driving through stop signals, or by speeding or by other forms of reckless driving, should be taken by the officer investigating the case to a hospital, or to a competent physician, for physical examination and for examination of his blood for alcohol and sugar content; and blood and spinal fluid Wassermann, and for non-protein nitrogen if there are evidences of uremia; and for examination of his urine for alcohol and sugar and albumin.

4. Before any person is granted an annual license to drive an automobile or other motor vehicle, he should present a certificate of examination by a licensed physician to show that he is not afflicted with any disease or disorder that would make him a menace to himself and others on the streets and public highways.

5. Among the diseases which should disqualify a person from driving an automobile are alcohol, morphine or other drug addiction; epilepsy, or petit mal attacks; hyperinsulinism or hypoglycemic attacks from other causes, as overdoses of insulin in diabetes; momentary lapses and fainting spells of unknown origin; advanced nephritis, with tendency to uremia; advanced heart disease; insanity; active tuberculosis, or other illness which may render a person physically or mentally unfit to drive an automobile in an emergency. A license to drive an automobile or other motor car should not be granted a person having any one of the diseases mentioned, or other diseases or disorders which render him, physically or mentally, unfit to drive an automobile. If he develops such a disability his license should be revoked.

---

"Maintaining normal weight is one means of postponing heart trouble. A middle-aged person who has become thirty pounds overweight has added some eighteen miles of blood vessels to his system."

## HYPERTENSION WITHOUT EDEMA\*

By  
PRICE CLAYTON, M. D.  
Russellville, Ala.

For the sake of clarity we shall use the classification "primary and secondary hypertension" in discussing the subject. Primary hypertension comprises that great group of cases known as essential hypertension, benign hypertension, hyperpiesis, etc., which comprise around 95% of all hypertension.

Secondary hypertension includes (1) chronic nephritis without edema, (2) thyroid hypertension, and (3) prostatic hypertension, which comprise around 5%. Thyroid hypertension should not cause undue hardship in diagnosis when it occurs in the female. However, we in the South are prone to overlook cases occurring in the male, but careful history and metabolic examination should aid in making a proper diagnosis. The cases are cared for by thyroid surgery, of course. Prostatic hypertension occurs at rather advanced years and should not give trouble in diagnosis, if the condition is kept in mind. At times it is hard to differentiate from so-called arteriosclerotic hypertension. In these days prostatic cases should not develop to advanced stages since resection has been perfected and the mortality rate improved.

The majority of cases of hypertension will fall into the two classifications: Primary or essential hypertension; and secondary hypertension, chronic nephritis without edema.

In many instances, we see these cases by accident early in the course of the disease. The individual comes in for an insurance examination or a periodic health examination and hypertension is discovered. We are as surprised as the patient, because he looks fine, feels fine, and is in his forties or fifties; but he has hypertension. The task now is to determine the type, so that we may treat the case intelligently. It is here, in both types, that the big onslaught on tonsils and teeth begins: all foci of infection are removed. This is fine for those with chronic nephritis in that it may remove old

---

\*Read before a meeting of the Northwestern Division of the Association, Florence, October 15, 1936.

foci even though it is too late to benefit the patient. For the primary cases, which comprise 95% of all hypertension without edema, there is no chance to do good since foci of infection play but little part in causing them. Keeping these differences in mind, we must be able to differentiate the two conditions as early as possible, though in early cases this may be difficult, even with kidney function tests, blood examinations, urinalyses and eyeground examinations.

As the cases develop, the peculiar signs, symptoms and laboratory evidence, that lead to accurate diagnosis, present. In the nephritic, headaches become more pronounced, the blood pressure readings climb gradually and tend to maintain an even line; nocturia and albuminuria develop, and a characteristic blood chemistry manifests itself. From this stage the patient goes into complete disability; and the end, which may be uremia, cerebral accident, congestive heart failure, angina pectoris, or coronary thrombosis. The treatment of these nephritic cases has varied but little in past years. Possibly more proteins and salt are given than formerly but they are still curtailed. As the heart begins to weaken, digitalis is of great benefit, and prolongs life in many instances. Quinidine is contraindicated in any irregularity that develops after the heart is materially diseased. Later in the disease, edema will develop, most likely, whereupon the diuretics may be of use. The xanthine group is widely used at present but the mercurials are still good treatment. In most cases both will be resorted to before the end.

Essential hypertension, the ever mounting curse to modern high pressure living, is growing yearly. According to Brown this type is 95% of the total at the present time. The cause is obscure. Many theories have been advanced but few facts. Brown says: "I think it is safe to advance the conception that essential hypertension means the inheritance of a vasomotor mechanism that reacts excessively to its inner and external environment." Most theories relate to the blood vessels. The adrenals have been blamed but little definite knowledge is available as to the part they play as a causative factor in the disease. The autonomic system does not always act as the normal system acts. One perfectly healthy

individual's heart may beat 60 per minute. Another equally as healthy may beat 120; yet the normal is about 80. The usual temperature is around 98; though one individual may be under, another over, and both be normal for these individuals.

The question arises as to whether this abnormality of the vasomotor mechanism of the hypertensive subject is central or peripheral. Roth and Hargroves have shown that when a hypertensive patient is allowed to breathe 10% CO<sub>2</sub> the blood pressure rises two to four times as much as in normal individuals. This led them to believe there is a possible vasomotor center in the medulla which reacts excessively to stimulation, and that the stimulant acts only on brain centers.

We believe that the hypertensive subject is born with an abnormally sensitive vasomotor center which reacts excessively throughout life. These people are born to have high blood pressure. If they live long enough, they will surely have it, and it does not appear that anything can be done to alter the situation. By a so-called "cold test," Brown has picked these prospective hypertensive individuals early in life before hypertension can be demonstrated. When the arm of such an individual is immersed in cold water (5 degrees Centigrade) for a short period of time, the blood pressure is found to be increased out of all proportion to those who have no hypertensive background.

The pathologic picture of the heart and blood vessels is essentially the same as that following any hypertension. The enlargement of the heart, noted first in the left ventricle, is a compensatory mechanism to keep the blood flowing against increased resistance. Later, as heart failure begins and pressure in the lungs is increased, the right ventricle enlarges. There is general thickening of the walls of the blood vessels, with resulting narrowing of the lumen of the smaller blood vessels.

The prognosis of these cases should be given rather guardedly. The course of the disease is progressive, but many patients live for years, losing comparatively little time from work. Only in the late stages do heart failure and its complications confine the patient to his bed.

Treatment, on a saner basis today than ever before, is symptomatic. No medicine



will cure the condition. Sleep should be promoted with bromides or barbiturates, even morphia if necessary. Relieve chest discomforts in whatever way appears to be best. Decrease nervousness and lighten hours of work—physical or mental. Potassium sulphocyanate,  $1\frac{1}{2}$  grains three times a day for one week, then night and morning for one week, and then at night for one week, in many cases lowers the pressure for a short while.

Recently surgery is being resorted to with some success. Brown and Adson at Mayo Clinic report good results on several cases by resecting the anterior spinal nerve roots. These patients got relief by severance of the nerve roots supplying the splanchnic vessels, thereby causing dilatation of this great body of blood vessels with subsequent lowering of the blood pressure. This, of course, is following the old procedure of periarterial sympathectomy for Buerger's disease. Just what long range benefit surgery is to give is yet problematical. It is, at least, giving temporary relief in most cases tried, and may be developed into a life saving procedure for these unfortunate individuals.

#### SUMMARY

1. Essential hypertension comprises about 95% of all hypertensions.
2. No medical treatment seems to alter the course of the disease.
3. Heredity seems to be the predominant causative factor in the disease.
4. Surgery may become the principal mode of treating the condition.

#### SOME POINTS IN THE DIFFERENTIAL DIAGNOSIS OF COMMON LUNG DISEASES\*

By  
CABOT LULL, M. D.  
Birmingham, Ala.

The title selected for this paper indicates that discussion will be limited to the differentiation of certain of the commoner lung diseases. We believe that, in a limited time, we shall profit more by such an approach than by dealing with interesting features of rare conditions. Although this is an age of specialization, most sick people go to

family physicians—an added reason why it would be well to confine this presentation to lung diseases commonly encountered. Pneumonia, still Captain of the Hosts of Death, will not be included.

Coryza, sinusitis and pharyngitis remain baffling as to cause, prevention and cure, despite the experimental and clinical study accorded them. What concerns us most now is that many of the more serious lung conditions appear to follow these upper respiratory infections, acute or chronic. The individual with the neglected common cold, the walking influenza patient who develops pneumonia and the chronic sinus victim refuse to heed our warnings, and, though many escape immediate trouble, some become sufferers from serious lung conditions later.

Bronchitis, the first of our common lung conditions, is a much abused and misunderstood malady. As an acute condition it follows by extension of infection from rhinitis, pharyngitis, or laryngitis in a large majority of cases. Simple bronchitis should, if possible, be differentiated from influenza by its general mildness, absence of aching and prostration, and absence of an epidemic. The great importance of this disease is, of course, its tendency to predispose to pneumonia, its tendency to become chronic and its association with bronchiectasis. Chronic bronchitis, though often associated with old age, "the old man's winter cough," as Osler called it, is nevertheless present in youth along with unsuspected sinus trouble or bronchiectasis. We must accustom ourselves to thinking of these conditions in children.

One should always question the etiology of bronchitis in child or adult. Is it tuberculosis? Is there bronchiectasis or emphysema? Is there asthma? Is there allergy? Does it suggest lung abscess or foreign body or dust, or yeast or other fungi? Is it a manifestation of congestive heart failure? Is malignant disease, primary or metastatic, possible? The diagnosis of chronic bronchitis should be made cautiously and qualified, usually, by a suggestion of its etiology and a description of accompanying conditions. We no longer speak of heart disease without indicating the possible cause and describing associated lesions. Neither do we consider nephritis a disease per se, but rather pathologic end results of

\*Presented at a meeting of the Southeastern Division of the Association, Jordan Dam, Wetumpka, June 25, 1936.

diseased conditions. Given a patient with a cough persisting for weeks with or without fever, fatigue, weight loss, or blood spitting, shall we be content, then, to call the condition bronchitis because the sputum is negative and physical signs are non-diagnostic?

Confronted with the newer concept of bronchitis, a symptom not a disease, and realizing the great number of conditions that can and do produce this symptom-complex, the wise clinician takes time out for thinking and investigating. First in order, he will take a careful history—family and personal—including environment or exposure. How very often the data given by the patient, himself, are almost sufficient to convict on circumstantial evidence. The contact with known or suspected open tuberculosis withholds the story of his pleurisy, hemoptysis, even night sweats, so suggestive of tuberculosis, unless he is asked the direct question, "Have you ever had these?" The story of long standing sinus disease, frequent colds, attacks of acute bronchitis, expectoration of large quantities of typical sputum after paroxysmal cough or change of posture, pointing to bronchiectasis, is most helpful.

The history of non-productive cough, with marked dyspnea and later hemoptysis, usually without fever, so suggestive of malignant disease, is not elicited without careful questioning.

All of us know how easy it is to overlook the clue pointing to lung abscess, the tonsillectomy, tooth extraction, or pneumonia, which so often initiates this condition, and to clinch it—sputum with a foul odor.

The answer to the simple question, "Do you wheeze?" is of vast importance. Dr. Chevalier Jackson's saw, "All is not asthma that wheezes," often means, as you know, that foreign bodies or plugs of mucus blocking air passages also make wheezes.

Diagnosis of asthma of allergic or cardiac origin rests frequently on history alone, though the specific excitant may be found only by careful testing. The large group of conditions embraced under pneumoconiosis yield valuable diagnostic data in well taken histories, while the fungus infections of the lungs offer little and may be diagnosed only by laboratory procedures which demonstrate their morphologic and cultural distinctions.

Certainly one would need only to know of a recent surgical operation to suspect massive collapse or atelectasis of one lung. The sudden agonizing pain in the chest easily confused with angina will, if followed by marked dyspnea, give one the hint of a spontaneous pneumothorax. Last of all, the history of dyspnea on exertion, edema, and cough gives excellent grounds for suspecting cardiac failure with resulting lung congestion.

The physical examination of the patient, the next logical step, may furnish definite enough evidence, in some cases, for diagnosis, but in a disappointingly large number the signs are inconclusive and must be interpreted along with history and laboratory findings. To illustrate:—Our teachers of a generation ago laid down dogmatic rules such as these: "Physical signs of infiltration in the upper lobes mean tuberculosis, in the lower lobes some inflammatory condition non-tuberculous in character." "Dullness or flatness in lung bases with absence of fremitus means effusion." So many exceptions are found to such working rules that we have largely gotten away from them. Tuberculosis in bases and lung roots in childhood and young adults is not uncommon, while the sure signs of effusion mentioned may often be malignant disease of the pleura with or without fluid.

In childhood disease of the lung, we regret to have to acknowledge that physical signs are relatively unimportant in most cases. Dependence now is on tuberculin testing and x-ray study. We would not for a moment advise omitting a careful physical examination of the patient's lungs in all cases, but we do warn against too great dependence on fine percussion changes, slight alterations in breath sounds and presence or absence of moist rales. Our own working formula in physical examination of the chest is, "If you are doubtful, it isn't so." The presence of bilateral fibrosis destroys contrasts between the two lungs and often presents no physical signs which denote disease. Such lungs in persons of fair health will sometimes be shown, on x-ray study, to be riddled with tuberculous lesions.

We come to the third group of diagnostic procedures which the clinical laboratory offers. The most important of all is, of course, the examination of the sputum for



tubercle bacilli. Without going into technical details so little understood and observed, we shall venture the statement that the average single sputum examination reported negative to the physician, and hailed with joy by the patient and his friends, is little less than a farce and had best not be done. In many institutions the rule is to have ten daily examinations if negative, to be followed by a concentration method on a forty-eight hour specimen. The most painstaking search is necessary in this work, and even then culture and animal inoculation may demonstrate the organism where the routine staining methods have failed. Pleuritic exudate should always be carefully studied in recurring, longstanding or doubtful cases. One may demonstrate tubercle bacilli or cancer cells by appropriate methods. Ordinary blood counts are of little diagnostic value as between tuberculosis and the so-called inflammatory group of diseases. Complement fixation, while interesting, is not a necessary test and sedimentation rates, now much in vogue, are used in determining activity and hence are of more prognostic than diagnostic value. Tuberculin, either as Koch's O. T. or the more recent and apparently reliable P. P. D. (Purified Protein Derivative), is of the greatest value in group testing, and in children is a *sine qua non*. The reactors among adults still leave us with the problem of active or non-active tuberculosis.

In our differentiation of non-tuberculous conditions, as has already been said, the recovery of yeast and related fungi from the sputum and their recognition by morphologic and cultural methods alone are diagnostic.

While it is perfectly true that many cases of chronic lung disease can be accurately diagnosed without x-ray study, it is also true that in every such case a *good* film of the chest is most helpful in determining location and extent of areas involved, as well as for a permanent record of the case. Conversely, a poor film results in "confusion worse confounded." Furthermore, in tuberculosis no adequate record of progress can be made without serial x-ray study. In bronchiectasis, lung abscess, encysted empyema, massive collapse, spontaneous pneumothorax, and all neoplastic conditions of the lung, the x-ray practically tells the whole story. The very general use of lipio-

dol for injection into sinuses, into the bronchial tree and cavities (of non-tuberculous nature) has served to make x-ray study in diagnosing these conditions indispensable.

Finally, as has been said, childhood lung diseases, whether glandular adenopathies, tuberculosis, Hodgkin's, malignancy or simple bronchiectasis, require, in addition to careful history and tuberculin testing, a thorough radiographic study before, in many cases, a diagnosis is possible.

In conclusion, it might be said that the writer is guilty of inconsistency when he appears before an audience made up largely of general practitioners and, after suggesting that the burden of diagnosis in lung condition rests on them, proceeds to emphasize the need of elaborate equipment for diagnosis. How shall the general practitioner, who sorely needs these diagnostic aids, secure them? My answer is, first utilize always to the fullest extent the agencies within reach and set up to serve your needs—e. g., the laboratories in your communities. The State and County Health Departments have done no better work for disease prevention and for the alleviation of those already afflicted than to establish laboratories and x-ray clinics to aid us in finding and recognizing lung diseases. Only a bare beginning has been made. We, who have in trust the health of Alabama's citizens, owe it to them to see that diagnostic facilities are provided for the middle class under proper professional supervision. In cities these things are available to the well-to-do for the buying and the poor for the asking. The country and the small town must have much better provision of this kind for all its sick than is now available or the threat of State Medicine will continue.

When all is said and done the one great essential for recognition of diseased lung conditions, as in fact in all other diseases, is openmindedness and a little play of the imagination to enable us to run over in our minds all possibilities in a given case.

The second step is to insist that we shall have for our patient, rich, poor or of low income, such facilities as are necessary to a complete, satisfactory diagnosis.

---

"The habit of kissing a bruise or other hurt to make it well arose from the world-wide custom of sucking wounds to further their healing."

PRACTICAL SUGGESTIONS IN  
PEDIATRICS\*

By  
J. J. REPA, M. D.  
Montgomery, Ala.

In collecting material for this paper the main idea kept in mind was to present only those suggestions which are practical and which might be used in general practice without entailment of much expense.

## HERNIA

A common, and oftentimes troublesome, condition in infants and young children which a physician must treat is umbilical hernia. In the past, various non-surgical means have been used in an attempt to correct the disability. A favorite method was the hernial button held in place over the tumor, causing its invagination into the abdominal cavity. Another was the placing of a coin, such as a quarter, over the tumor to prevent the escape of a loop of intestine through the opening between the separated recti muscles—the coin being held in place with adhesive strips. One needs only to visualize the underlying structures at fault in the production of the hernia to realize that these methods will not give a permanent cure. The button accentuates the rent in the abdominal wall and actually prevents the correction of the condition by prohibiting the muscles from coming together. The coin treatment, although not as bad as the button, only hides the hernia temporarily, but likewise does not correct it.

Umbilical hernia is due to faulty separation of the two recti muscles resulting in a weakened abdominal wall in the midline protected only by the abdominal fascia and skin. A logical treatment then would appear to be the realignment and fusion of these muscles firmly enough to prevent future extrusion of abdominal contents. This can be accomplished by means of a simple process; namely, by reducing the hernia with the patient lying down, at the same time bringing the two recti muscles firmly together and fixing them in this position by means of adhesive tape. The adhesive strips should be about one and one-half inches wide and sufficiently long to reach

to the lateral abdominal wall. The adhesive should be kept in position for one month and replaced for a period of another month if the hernia persists or recurs.

## SUN BATHS

During the colder months of the year, difficulty is at times encountered in giving the child its sun baths because the mother is afraid to expose the child before an open window. To overcome this difficulty without entailing much expense, a window screen made of flexo glass can be used which will permit the passage of ultraviolet rays into the room in which the mother desires to give the sun bath. Flexo glass is commonly used in the construction of poultry houses and can be purchased at most poultry supply stores at a cost of twenty-five cents a yard. Its employment is to be recommended since ultraviolet rays cannot pass through ordinary window panes.

## ENURESIS

Enuresis, or bedwetting, is still as great a problem as ever and every year brings new forms of treatment, usually drugs and fluid restriction. Recently Dr. J. W. Bog-gess, Jr., of Guntersville, this state, expressed the opinion that enuresis is due to an imbalance between the calcium-phosphorus ratio.<sup>1</sup> He reported good results from feeding the patient foods rich in calcium, vitamin D, and parathyroid extract. The treatment which we offer requires no drugs; only the cooperation of the mother and child. The aid of the child is not difficult to obtain, usually, particularly in children over five years of age. The child is simply instructed to report to his mother when he feels the urge to void and the mother makes the child wait five minutes before allowing him to do so. Each day the waiting period is increased two minutes until the child is waiting one-half hour before urinating. At the same time as this routine is being followed, the child is taught to stop and start the stream, which procedure strengthens the cut-off muscles of the bladder. In younger age groups, where the child fails to cooperate, a small catheter can be inserted into the urethra and a few drops of neosilvol instilled, the neosilvol being used only as an antiseptic to prevent infection. This procedure causes involuntary contractions of the cut-off mus-

\*Read before a joint meeting of the Elmore and Tallapoosa County Medical Societies, Camp Dixie, August 11, 1936.

1. J. M. A. Alabama 5:417, June '36.



cle, thus giving the same ultimate results as in the waiting-period method.

#### TREATMENT OF CONSTIPATION IN CHILDREN

In constipation, as in many other conditions, the tendency of the physician in charge is to take the easier course and order laxatives, suppositories and enemas to evacuate the child's bowels. The immediate effect of these procedures is satisfactory but ultimately, if they are continued, the child becomes chronically constipated with an atonic, lazy, large bowel, the result of lack of exercise. The act of defecation, we know, depends upon many coordinating muscles, of which the abdominal ones play a most important role. If these muscles are neglected and not permitted to perform their normal daily exercise, the natural result is a sluggish, constipated, lower bowel.

In treating constipation in young children, the results are frequently most gratifying if the child is given a routine set of abdominal exercises to perform each day. Dr. Lesesne Smith, of Saluda, North Carolina, follows a regular plan in such cases of constipation, which we believe worth passing to you. He uses small sand bags made of oil cloth, weighing one, two or three pounds depending upon the size of the child, placed upon the child's abdomen and the child taught to swell up like a frog, thus contracting the abdominal muscles. The mother has the child go through these maneuvers, six to eight times a day in the beginning, gradually increasing the number of exercises up to twelve, morning and evening. Giving the child a warm drink in the morning, and adding stewed fruit to the diet, often enhances the effect of these exercises, but the use of routine laxatives is to be definitely condemned.

#### AFTER-CARE OF POLIOMYELITIS

In reviewing text-book articles on poliomyelitis, it appears most authors are content to state that rest of the paralyzed part should continue as long as pain and hyperesthesia persist; and that the delay of massage, motion and electrical stimulation should be postponed for a similar length of time.

Dr. J. P. Leake of the United States Public Health Service, in his recent address before the physicians of North Alabama at Decatur, strongly emphasized the importance of keeping the part in a neutral posi-

tion to prevent stretching of the affected muscles, and continuing this rest for an unlimited period, even over many months. He stated further that no harm would result from prolonged rest and that the ultimate return of function would be proportionately greater as a consequence. To prevent joint stiffness, even in the acute stage, a very limited amount of active motion is allowed the paralyzed part once daily within the limit of pain, care being taken not to overstretch the muscles.

Regardless of the type or distribution of paralysis over the body, the only position for the patient is on his back in bed, with legs straight, feet at right angles to the legs and arms in an abducted position. To maintain the proper position, splints, casts, sand bags or other improvised devices may be employed, keeping in mind that the simpler devices render the patient more available for nursing care. Where there is much involvement of the legs or trunk muscles which are used in maintaining an upright position, the patient should not be allowed on his feet for six months to a year, or an even longer period depending upon his response to treatment. Recumbency is best for such cases while definite improvement continues. The sitting position is hard on the deltoid and abdominal muscles and stretches the very important quadriceps and gluteal muscles more seriously than does the upright position. Nothing has caused greater deformity and contraction of limbs than the use of the wheel chair. It should not be used.

When the physician has completed his examination and knows the extent of paralysis in a patient, the next and final step consists of muscle training by means of graduated exercises. We shall not attempt to go into detail about muscle training since it necessitates a knowledge of the functions of all the muscles of the body and varies with the muscles affected. If this information is desired, a pamphlet entitled "Practical Suggestions in Poliomyelitis," which covers this phase of the disease in detail, may be obtained from the American Medical Association.

Our aim in mentioning poliomyelitis here is to emphasize, particularly, the importance of rest in bed and support of the paralyzed part over a long period of time.

# THE JOURNAL

OF THE

## Medical Association of the State of Alabama

### Editor-in-Chief

FRED W. WILKERSON..... Montgomery

### Associate Editors

M. Y. DABNEY..... Birmingham  
W. D. PARTLOW..... Tuscaloosa  
J. N. BAKER..... Montgomery  
DOUGLAS L. CANNON..... Montgomery

Please send in promptly notice of change of address, giving both old and new; always state whether the change is temporary or permanent.

### Office of Publication

519 Dexter Avenue ..... Montgomery, Ala.

Subscription Price.....\$3.00 Per Year

February 1937

### EARLY RESERVATIONS ESSENTIAL

Contemplated scarcity of rooms in Birmingham hotels April 20, 21 and 22 makes it necessary that members of the Association attend to their reservations at once. To the Tutwiler, selected as headquarters for the Association's annual meeting on the dates set forth above, or other hotel, a communication should be addressed *immediately* asking that a room be reserved. This is urgent since another large group will be in session in Birmingham at the same time.

### "TIME MAKES ANCIENT GOOD UNCOUTH"

By its very nature the Art of Medicine makes sudden revolutionary changes in its onward course inevitable. How far we progress from decade to decade is not easily apparent to us. To read again some outstanding contribution to medicine twenty years after its first appearance impresses the mental growth of the interval vividly upon our minds.

In September 1915 the late Dr. Frank Billings delivered the Lane Medical Lectures before the School of Medicine of Leland Stanford University. These lectures were published the following year.

Within a short compass of one hundred and fifty pages Dr. Billings defined the

part which the focal infection theory of disease had played in medicine. The Lane Lectures contain a forthright statement from an individual with an excellent command of simple English and a profound conviction as to the importance of the ideas which he elected to discuss.

The subject matter of the Lane Lectures for the year 1915 was important indeed. It would be idle to deny that the focal infection theory modified in a remarkable manner the practice of medicine. For years it directed many of our research problems. It gave zest and apparent logic to the consummation of a wealth of minor surgery, particularly of the head and upper air passages. Of outstanding importance was the part which this theory played in admitting our patients for the first time into the realm where their own medical problems were discussed and brought to an issue.

In the introduction to the lectures Dr. Billings' made this cogent statement:

"Living morbid tissues were obtained at surgical operations and also from other patients, who submitted voluntarily and in many instances requested the removal, when necessary under local or general gas anesthesia, of bits of infected tissue (muscle, capsule of joints, lymph nodes, erythematous nodes, fibrous nodes of tendons) of exudates and of the blood, for experimental purposes."

We may judge from this how eagerly the patients even at this early date accepted the idea that there was some focus in their bodies which produced the disease from which they were suffering. We may judge also that it was a source of no little satisfaction to the pioneers in this field that they should obtain from their patients such prompt cooperation. Looking back through the vista of twenty years, and in possession, as we believe, of many facts unknown at that period, we are better able to understand why this acceptance on the part of the patients should have been so wholehearted and enthusiastic.

The sick felt that the discovery of a focus in their bodies, which their advisers informed them was capable of producing all the bizarre symptoms from which they suffered, was a discovery in very truth.

This focus, this evil, was mitigated by two facts: Frequently it was removable.

1. Billings, Frank: Focal Infection. The Lane Lectures. D. Appleton & Co., New York and London, 1916.



(How often as we read the earlier work on focal infection are we reminded of the sick in Menninger's<sup>2</sup> contribution who were so eager to sacrifice a part in order to save the whole.) What was not so clearly envisioned at that time: it was an evil for which the patient himself was in no wise responsible.

When the focal infection theory of disease had come into full bloom, sickness seems to have been looked upon as something impersonal, like death and taxes. It possessed an objectivity in 1916, which we are loath to bestow upon it in the present time. In those days sickness was viewed as a wholly undesirable condition, the presence of which was invariably resented by its victims.

We have come a long way in the past twenty years. As we read Dr. Billings' brilliantly written monograph, we encounter nowhere the idea that some human beings might accept the coming of a chronic disease, not only with equanimity and resignation but with a deep sense of satisfaction because it might relieve them of many of the bitter responsibilities of life. There was in those pages, naturally enough, no implication that the sick of the body and the sick of the spirit were in truth brothers in the same misfortune. There is no evidence that the medical profession had taken to heart Gorky's<sup>3</sup> searching words:

"There are some people who look upon disease of the body or of the soul as the best and most precious thing in life. Though they suffer by it yet do they live upon it. They complain of it to other people, and by means of it attract to themselves the attention of their neighbors. They use it as a means of obtaining sympathy, and without it they are nothing at all. Take away from them this disease, cure them, and they will be unhappy because they will be deprived of the only means of living."

Twenty years ago lip service only we judge was given to the truth that each man had his own disease; that any sickness whatsoever it might be was capable of shattering changes in course and ultimate result, depending on the attitude which the host developed toward the invader.

The coming of the focal infection theory

created many changes in the form and methodology of medicine. If so many of the ailments of human kind were the results of poisons fed into the common economy by reservoirs in distant parts of the body, to detect these interlopers would require the undivided attention of men skilled in the examination of discrete portions of the human machine. In answer to this demand Group Medicine came into being. Group Medicine was a normal and intelligent response to the growing popularity of the focal infection theory.

That this popularity was great indeed no one who has practiced medicine in the past two decades needs to be reminded. That this popularity is for a number of reasons on the wane is also evident. One reason for this decline has been the disposition on the part of the laity to hold focal infections responsible for all the ills of the flesh: the inevitable impairment of the vascular system, the flight of time, sorrow, despair, and other incidents of our common humanity. Many of our patients appeared before us, like modern Ponce de Leons, seeking the fountain of perpetual youth through the medium of a tonsillectomy or the extraction of a tooth.

One effect—and a beneficent one—the focal infection theory has left behind it: the habit of performing a more comprehensive examination of our patients, regardless of what complaint brought them to us. This worthy monument it is believed will be permanent.

#### MENTAL BREAKDOWNS

(From *Commentator* of the Owensby Clinic)

William D. Partlow, M. D., President of the Southern Psychiatric Association, Councillor of the American Psychiatric Association, Superintendent of the Alabama State Hospitals, etc., writes, "At one time the sole function of medical science was the diagnosis and treatment of disease. As the science has advanced and causes of disease have been discovered the prevention of disease through sanitation and public health has become, if possible, the most important medical activity. For some reason, however difficult to understand, the early recognition of threatened mental breakdowns has not commanded the attention of the medical profession that it deserves.

2. Menninger, Carl A.: Polysurgery and Polysurgical Addiction. *Psychoanalytic Quarterly*, Vol. 111, No. 2, April 1934.

3. Gorky, Maxim: *Creatures That Once Were Men*.

When we take into account the astounding fact that there are at present in public institutions more than 508,448 patients (J. A. M. A. 106: 10, March 7, 1936), not including over 41,000 on parole (1934) from state institutions, and the further fact that patients are being admitted to these institutions annually to the number of 173,109 in the year 1935; and the further fact that the cost for maintenance for the year 1934 was \$12,096,039 (government, veterans, etc., hospitals are not included in this cost), we begin to realize something of the importance of prevention and early recognition of threatened mental breakdowns in order that some concerted effort may be made to prevent or forestall this tremendous loss to human society. (Maintenance cost taken from 'Patients in Hospitals for Mental Disease,' published by U. S. Dept. of Commerce, 1936.)

"Since it is now so fully understood and known that most mental breakdowns slowly and gradually develop from, as a rule, a number of contributing causes in each case; and when we remember that in practically every case there are signs, indications and sufficient alarm appearing in advance, giving warning of what may be pending or threatening, much may be accomplished by the proper recognition of these alarming signs early and the proper measures taken to avert a mental collapse. In such case a life is saved and the attending distress prevented.

"We have been quick to recognize the importance of both the prevention and early diagnosis of such physical diseases as cancer, tuberculosis, and numerous other diseases, in order that we may prevent their ravages or effect a cure. It is my opinion that an equally early recognition and rational action, on the basis of our present knowledge, would either prevent or assure a prompt and favorable termination of more than one-half of the mental patients now being committed each year to our public and private institutions. Therefore it is important that the profession awaken to the wonderful field of opportunity for service in their private capacities and thus avoid or prevent the necessity for the intramural or institutional care and treatment of such a tremendous number of mental breakdowns."

## SYPHILIS

The taboo which has surrounded the very name of syphilis is rapidly being dissipated and the public is beginning to appreciate, not only the seriousness of the disease and its universality, but the need of control programs. The new Surgeon General of the United States Public Health Service has assumed the leadership in the fight to eradicate the disease and can be counted on to furnish every possible aid from the federal government.

Elsewhere in this issue is a report of a conference held in Washington, December 28th-30th, which attracted an attendance of over 900 practicing physicians, health workers and social service workers. At this conference the various aspects of control programs were considered and general recommendations made. It was realized that in a country as large as this no program was applicable to all sections and that individual problems would have to be solved.

In the general program outlined, Alabama is already blessed with some of the requisites. Diagnostic facilities, for example, are above the average through the system of branch laboratories. The need for darkfield equipment is being remedied and in at least two laboratories this procedure will be established, permitting examination from the remoter areas by means of capillary tube specimens.

Provision for treatment of all classes is another essential. For the indigent and borderline case some means of clinic service seems the logical proceeding. In several of the Alabama counties the medical society is attempting to meet this need by the establishment of small pay clinics under the auspices of the society and an expansion of this type of service would seem logical. The health department is aiding through the furnishing of free arsenicals and heavy metals to these clinics and for indigent use anywhere in the state. The more liberal distribution of these supplies as finances permit is in accordance with recommendations.

It is interesting to note that more than 11,000 new cases of syphilis were reported in Alabama in 1936, this number being exceeded only by the number of cases of influenza recorded. A uniform system of reporting cases was recommended by the confer-



ence and a new report card will shortly be furnished in this state.

If syphilis is to be controlled it can only be done by the combined efforts of the medical profession and the public health forces.

The Committee on Postgraduate Study of the State Medical Association has adopted syphilis as its first consideration and will sponsor the dissemination of knowledge of the newer methods of treatment.

## DEPARTMENT OF PUBLIC HEALTH

### BUREAU OF ADMINISTRATION

J. N. Baker, M. D.  
State Health Officer in Charge

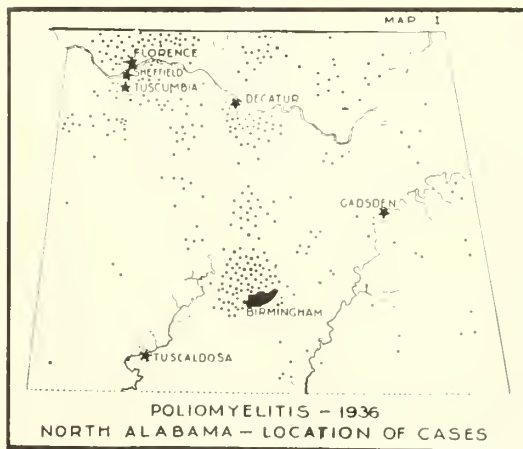
#### POLIOMYELITIS IN ALABAMA DURING 1936\*

Unfortunately it so happened that during the summer of 1936 Alabama was called upon to play the part of host to an unwelcomed and unsavoury visitor within her borders—poliomyelitis. Such a role, as can be attested by any state having had a similar experience, carries many irksome and distasteful responsibilities. So far as the records of the health department reveal, this was the first time that this disease has invaded this state, other than in a sporadic or non-epidemic form. The experiences of North Carolina, Virginia and Kentucky, in 1935, and of Alabama, Tennessee and Mississippi, in 1936, would seem to indicate that the supposed immunity of the Southern States to this disease hardly holds true.

Not all of the entire area of Alabama was involved; the disease was first unearthed in certain of the most northern and western counties and its epidemic character remained confined to the northern half of the state. There was some extension as far south as Birmingham, in Jefferson County, and to the immediately contiguous counties; otherwise the spread seemed to be northward into Tennessee and westward into Mississippi. Map I shows the location of the cases reported from North Alabama up to November 1st of this year.

From January 1st to May 31st there had been but nine cases of poliomyelitis reported throughout the state. This incidence of the disease, for a population group of some two and three-quarter millions, may be considered within the normal range of occur-

rence. The first intimation of threat of a possible epidemic was revealed when, during the week of June 13th, eight new cases of poliomyelitis were reported to the central office, all from the northern half of the state. Prompt investigation revealed that there were a considerable number of cases,



many of which had not been seen by a physician, or where a physician had not been consulted after the onset of a definite paralysis; consequently, no accurate diagnosis nor report had been made. From June 1st through October 31st, 364 cases of poliomyelitis were reported; of this number 30 died, giving a mortality rate of 8.2%. Only cases which showed an actual paralysis or definite weakness of some group or groups of muscles have been included. It was felt that the diagnosis of non-paralytic cases might be open to question, inasmuch as the employment of spinal puncture was not the usual practice in the rural case.

Graph I shows the cases by date of onset of symptoms; from this it will be seen that the peak incidence was reached early in July and began to decrease about August 1st. The curve of reported cases naturally falls later. A comparison of the epidemic in Alabama this year with the paralytic

\*Paper read by the State Health Officer before the Southern Branch of the American Public Health Association, Baltimore, November 17, 1936, being a part of a symposium on poliomyelitis and appearing concurrently in the proceedings of the Southern Branch.

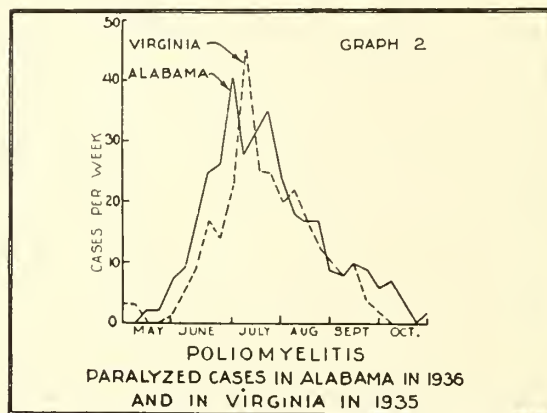
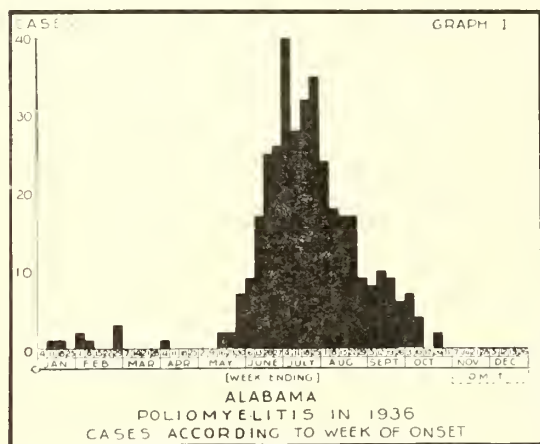
cases reported in Virginia<sup>1</sup> in 1935 reveals a close parallel as to severity and duration of the outbreak. This is shown in graph 2.

Our experience conforms to the findings in other epidemics as regards rural and urban distribution of cases; 70% rural and 30% urban (over 2,000 population) in 355 cases analyzed. Of these, 89% were white and 11% coloured. In the epidemic area of Alabama the Negro comprises approximately 28% of the population, as contrasted

state were voluntarily postponed or cancelled upon the advice of the State Health Officer.

3. Travel to and from the infected area was discouraged.

4. Meetings were held with county medical societies in the area involved and at many points throughout the state at large. In this way the medical profession was fully informed and urged to be on the alert for early symptoms of the disease.



with a 37% Negro population for the entire state; from these figures it is seen that the attack rate was appreciably lower in the Negro race. The age distribution was as follows: 4.8% under one year; 46.2% from 1-4; 29% from 5-9; 10.4% from 10-14; and 9.3%, 15 years and older. The cases were divided almost exactly evenly as to males and females, being 178 males and 177 females.

When it became apparent that an actual epidemic of poliomyelitis threatened, certain general and widespread measures were recommended by the State Department of Health:

1. Full and complete information concerning the epidemic and the incidence of cases was immediately made available to the general public and the people were informed daily as to the progress of the outbreak. The cooperation of the newspapers and press agencies proved invaluable in the dissemination of authoritative knowledge.

2. Attendance at public gatherings of all kinds was strongly discouraged. Many meetings of various groups throughout the

5. Consultants were made available to assist in diagnosis and to advise with local health departments on individual problems.

6. The use of vaccines was not recommended; because of the fact that the majority of cases were of rural origin and of the present undetermined status as to the value of convalescent serum, no effort was made by the health department to furnish this therapeutic agent.

7. Follow-up of cases to provide approved and satisfactory after-care, where necessary, was instituted.

8. The application of the picric acid-sodium alum nasal spray on as an extensive basis as possible to the general population was considered worthy of trial and plans looking to this end were inaugurated.

Items 7 and 8, enumerated above, call for further elaboration.

With the large number of rural cases and with the low economic status of most of the families in which cases were occurring, it was felt that no time should be lost in aiding physicians in the proper home after-care of their paralytic cases. Accordingly, through the cooperation of the Public Health Service and the New York State Department of Health, a nurse adequately

1. Riggan, I. C.: Poliomyelitis in Virginia during 1935, *Am. J. Pub. Health* 26:98-100 (1936).



trained in the after-care of poliomyelitis in the home was obtained and placed in charge of a group of nurses who had been generously provided by the Works Progress Administration. These nurses, before assuming their duties, were given the necessary instruction in the splinting of paralysed limbs to prevent contractures and deformities. Each physician having a case was offered the assistance of such nurse, and, in nearly every instance, the offer was gratefully accepted. It was thus possible to provide much better home care than would otherwise have been the case. Undoubtedly, through this means, many of the permanent deformities have been avoided. Provision has also been made for proper orthopedic care for such cases as may need it.

In further elaboration of item 8, dealing with the generalised use of the preventive nasal spray, it was felt that the experimental evidence recently presented by Armstrong and Harrison,<sup>2, 3</sup> of the United States Public Health Service, in their work on monkeys, appeared to be convincingly sound and worthy of an extensive trial in the face of the existing emergency. The responsibility of withholding any means which might prove helpful in curbing the spread of this little known disease was not one that could be taken lightly; consequently, with the approval of the United States Public Health Service, and after consultation with Dr. Armstrong, it was decided to attempt to have this agent applied as extensively and as expeditiously as possible throughout the state, with particular emphasis on the epidemic area.

Many medical meetings were held at strategic points in the state, to which physicians from the surrounding territory were invited and the experimental data and use of the spray were outlined by Dr. Armstrong. It was recommended, where at all possible, that physicians do all the spraying; but it soon became evident that its application could not be confined solely

to the medical profession. In many instances the initial spraying was done by physicians and subsequently carried out by some member of the family. The spray, as recommended by the Service, of 0.5% picric acid and 0.5% sodium alum in normal saline, was employed once every other day for three or four times and thereafter once a week as long as the epidemic lasted. In order to rapidly reach the general population, and more particularly the rural sections and those not otherwise served, additional nurses were furnished to each county through the WPA to work under the auspices of the local health department or county medical society. The spray was inaugurated about July 15th and for the next month or six weeks effort was made to have it applied as generally as possible. After this date there appeared to be a considerable falling off, as the number of new cases of the disease began to decrease; consequently it has been difficult to estimate the number of people who continued the regular use of the spray as directed. The prisons throughout the state, CCC camps, relief workers, colleges and other institutions all enforced spray regulations.

Estimates as to the percentage of the population which actually used the spray are, for obvious reasons, difficult to compute. In the southern counties of the state where the disease was never present in epidemic form, its application, except at certain points, was not so widespread as in the northern section. In Jefferson County a survey of 2,076 families from widely separated areas in the City of Birmingham and the county showed that 61.6% had used the spray. In the City and County of Montgomery, where a rather intensive spraying campaign was launched, the health officer estimates that some 75% or more of the population of 100,000 received the spray. For the population of the state, as a whole, it is felt that probably 50%, or something more than 1,000,000, received the spray at some time during the summer.

Reactions of any importance from the spray other than a transient stinging or burning in the nose and throat and a watering of the eyes appeared to be relatively unimportant. Inquiry revealed that headache, particularly in persons having a history of previous sinus trouble, was the most common complaint. The bitter taste

2. Armstrong, C., and Harrison, W. T.: Prevention of Experimental Intranasal Infection with Certain Neurotropic Viruses by Means of Chemicals Instilled into the Nostrils, Public Health Reports 51: 203-215 (1936).

3. Armstrong, C.: Prevention of Intravenously Inoculated Poliomyelitis of Monkeys by Intranasal Instillation of Picric Acid, Public Health Reports 51:241-243 (1936).

was objectionable to many and some nausea or vomiting was encountered. In persons with an allergic history there were a few cases of dermatitis and edema which cleared on the cessation of the spray. No cases of serious or damaging after effects from the use of the spray have been brought to the attention of the health department. The conclusion, therefore, has been drawn from this rather large experience in its application to human beings, that the picric acid-alum spray, when properly prepared and applied, is practically devoid of danger.

Inasmuch as the spray was not brought into the control picture until the last two weeks of July, no beneficial effects could be hoped for prior to August 1st. From August 1st to October 1st we have complete records of 108 cases of poliomyelitis. Of this number, 59 had not used the spray and 49 had used it in some degree or fashion.

| Table I   |    |
|---|----|
| Cases of poliomyelitis who had used picric acid-sodium-alum nasal spray |    |
| Less than 7 days before onset ----                                      | 3  |
| 7 to 14 days before onset -----   | 8  |
| 15 to 21 " " " -----  | 5  |
| 21+ days before onset -----   | 20 |
| Irregularly -----   | 5  |
| Discontinued 15-60 days before onset --                                 | 8  |
| Total -----   | 49 |

Of these 49 cases, three had used the spray less than one week before onset; 8 had used the spray between one and two weeks prior to onset; and 5 had used it between two and three weeks. Five had used the spray irregularly; while 8 had used the spray but had discontinued its use from 16 to 60 days prior to their onset. The remaining 20 cases had used the spray regularly for three or more weeks prior to the onset of their illness and had apparently followed directions as to its use. The exact manner in which each spray was applied could not be determined, but these cases were probably representative of the sprayed population. It would seem, therefore, that these 20 cases should be viewed as failures, in so far as the spray, as applied in

Alabama, affording adequate protection against the entrance of the poliomyelitis virus into the human system is concerned.

#### SUMMARY

1. A total of 364 cases of paralytic poliomyelitis, with 30 deaths, were reported in Alabama from June 1st to October 31st, 1936.
2. The several steps and precautions taken by the State Health Department in combating the spread of the disease are given.
3. Follow-up nursing care and orthopedic care are being provided.
4. The picric acid-sodium alum spray, 0.5% of each in normal saline, was extensively used as a preventive.
5. The practically complete innocuousness of this solution, employed in the strength and manner recommended, seems established.
6. Forty-nine cases of poliomyelitis developed in persons who had used the spray for varying lengths of time.
7. Twenty of these 49 cases had used the spray sufficiently long and sufficiently often to have received protection.

#### EXPERIENCE WITH THE PICRIC ACID-ALUM SPRAY IN THE PREVENTION OF POLIOMYELITIS IN ALABAMA, 1936\*

Contributed By  
Charles Armstrong, M. D.  
United States Public Health Service  
Washington, D. C.

The nasal membrane as originally demonstrated by Leiner and Von Wiesner<sup>1</sup> in 1910 affords a portal of entry for the production of experimental poliomyelitis in monkeys, the virus being able to pass the non-irritated membrane as shown by Levadite and Danulesco<sup>2</sup> in 1912.

Schultz and Gebhardt<sup>3</sup> in 1934, Brodie and Elvidge<sup>4</sup> in 1934 and Lennette and

\*Paper read before the Southern Branch of the American Public Health Association, Baltimore, November 17, 1936, and appearing concurrently in the proceedings of the Southern Branch.

1. Leiner, C. & Wiesner, R.: West. Med. Review 15: 414, 1910.

2. Levadite, C. & Danulesco, V.: Compt. Rend. Soc. de biol. 72: 342, 1912.

3. Schultz, E. W. & Gebhardt, L. P.: Proc. Soc. Exp. Biol. & Med. 31: 728, 1934.

4. Brodie, M. & Elvidge, A.: Science, 79, 235, 1934.



Hudson<sup>5</sup> have shown that severance of the olfactory nerve prevents experimental poliomyelitis following intranasal, and even intravenous, inoculations with the virus.<sup>6</sup> These observations therefore point to the olfactory nerve as being the avenue by which infection travels from the nasal cavity, or even from the blood stream, to the central nervous system.

Armstrong and Harrison<sup>7</sup> first demonstrated that various chemicals, notably alum, picric acid, or a mixture of the two, when instilled into the nostrils of monkeys tended to prevent central nervous system involvement following subsequent introduction of the virus by the same route, or even into the blood stream.<sup>8</sup>

Prior to this work Olitsky and Cox<sup>9</sup> had shown that 1% tannic acid instilled into the nostrils of mice three times daily for three successive days tended to protect mice against intranasal inoculation with the virus of equine encephalomyelitis, but was ineffective in attempts to similarly protect guinea pigs against the same virus. Armstrong<sup>9</sup> likewise demonstrated that various solutions instilled into the nares of mice tended to protect them against the virus of encephalitis (St. Louis type) administered by the same route. More than 150 solutions have been tested against this virus on mice, this economical set-up being utilized as an indicator for the selection of chemicals suitable for trials on monkeys against poliomyelitis virus.

In our hands the most effective agent so far found is a mixture containing .5% each of picric acid and sodium aluminum sulphate in 85% saline. The results secured by Armstrong and Harrison with alum and with picric acid have been confirmed by Sabin, Olitsky and Cox<sup>10</sup> and by Schultz<sup>11</sup> and Gebhardt. These workers also demon-

strated that other chemicals such as tannic acid,<sup>10</sup> mercurochrome,<sup>11</sup> were also effective.

#### INFECTION IN MAN

The observations of Leake<sup>12</sup> afford direct evidence that in man infection of the central nervous system is also by way of nerve tracts, for in those cases suspected of developing from a subcutaneous injection of virus, paralysis, when it occurred, appeared first at the cord level which supplied nerves to the inoculation site. Such a correlation would scarcely have occurred had infection progressed by other than the axonal route.

The recovery of virus from the nostrils of man, the anatomic arrangement of the olfactory terminals, epidemiologic considerations and the limited value of immune serum in preventing natural infection point to the olfactory nerve as the probable usual portal of entry for poliomyelitis in man.

#### EXPERIMENTAL RESULTS

Through the instillation of the picric-alum solution into the nostrils, Dr. Harrison and I have saved 24 of 25 monkeys from an intranasal instillation of virus which proved lethal for 20 of 26 similarly inoculated controls. The solution produced no demonstrable local effect when instilled repeatedly into the nostrils or eyes of monkeys; neither were demonstrable effects noted in the kidneys or other organs.

The solution was sprayed repeatedly into our own nostrils and a small group of volunteers without apparent ill effects.

#### FIELD TRIALS ON MAN

In the absence of any established practical method for preventing human infection with poliomyelitis it seemed that the experimental evidence justified a trial of the method in man. The appearance of poliomyelitis in Alabama in 1936 afforded an opportunity to carry out such a field trial. Following a conference between State and Federal Health Administrators, it was decided to offer the method for application in the infected area.

The State Health Department supplied each physician in Alabama with a resume' of the experimental work carried out to that time, including instructions as to the

5. Lennette, E. H. & Hudson, P.: *Proc. Soc. Exp. Biol. & Med.* 32, 1444, 1935.

6. Armstrong, Chas.: *Public Health Reports* 51, 241, 1936.

7. Armstrong, Chas. & Harrison, W. T.: *Pub. Health Rep.* 50, 725, 1935.

8. Olitsky, P. K. & Cox, H. R.: *Science* 80: 566, 1934.

9. Armstrong, Chas.: *Pub. Health Reports* 50: 43, 1935.

10. Sabin, A. B., Olitsky, P. K. & Cox, H. R.: *J. Bact.* 31, 35, 1936.

11. Schultz, E. W. & Gebhardt, L. P.: *Soc. Exp. Biol. & Med.* 34, 133, 1936.

12. Leake, J. P.: *J. A. M. A.* 105, 2152, 1935.

preparation and application of the solutions.

It was made clear that the evidence as to the protective action of the proposed spray was based entirely upon animal experimentation and was not to be considered of proven value in the prevention of poliomyelitis in man. The Surgeon General of the United States Public Health Service, moreover, detailed a medical officer to the infected area who was familiar with the details of the experimental work. This officer, through a series of well attended meetings with physicians, the first of which was held in Montgomery on July 15, 1936, fully acquainted the profession with the theoretical and experimental basis for the proposed method.

It was advised that the proposed remedy be administered either by a physician or under his immediate supervision, for the following reasons:

1. The proposed spray had not been administered to any large group of individuals and it was desirable that its application be closely observed for untoward effects and that any such effects be promptly reported.

2. It was felt that a physician acquainted with the rationale of the method would be better qualified to adequately apply it than would a sympathetic parent who was probably unacquainted with the anatomy of the nasal cavities or of the region to be covered.

3. It was desirable that records of all treatments be kept and a form for this purpose was made available to physicians.

#### ADVISED METHOD OF APPLICATION

Realizing that thorough application of the solution to the olfactory area was fundamental for the success of the method, a grant was made in March 1936 by the President's Birthday Poliomyelitis Committee to Dr. Max Peet of the University of Michigan for determining the best method of its application in children. Dr. Peet and his associates began their studies on monkeys and demonstrated by means of x-ray opaque substances that the spray from an atomizer apparently coated the monkey's nasal vault as completely as did our experimental method of flooding. Dr. Schultz<sup>13</sup>

13. Schultz, E. W. & Gebhardt, L. P.: Calif. & West. Med 45: No 2, 1936..

has, moreover, demonstrated that atomizer-applied solutions tend actually to prevent intranasal infection of monkeys. Dr. Peet's work indicated that the position of the head during spraying made no apparent difference in monkeys, and it was his feeling that the nasal vault in children would be easier to reach with a spray than was the case in animals. Actual tests on children were, however, delayed by illness and other unavoidable circumstances, so that specific information based upon actual trials in children was not available when field tests were undertaken in July 1936, and are not now available.

Our advice to physicians, based on the animal work, was that three or four puffs from an atomizer, directed toward the top and not the back of the head, be administered up each nostril, and that the position of the head probably made no great difference. Spraying every other day for a week and once weekly thereafter was recommended. This schedule was based upon the fact that an accumulative protection was demonstrated with successive spraying in animals and that once established less frequent applications would maintain it. Crowding of children into the physician's office was considered to be objectionable by the State Health Department so, where possible, spraying in the open was advocated. The public was advised through the lay press as to the aims and hopes for the spray.

#### ACTUAL METHOD OF ADMINISTRATION

Some few physicians preferred not to employ an experimental procedure, and others feeling that the parents could be taught to do the spraying demonstrated the procedure and advised them to purchase materials and to spray their own families. Only 57 out of 1,153 families were regularly sprayed by physicians.

The great mass of physicians stood squarely behind the efforts of the health department, but it soon became evident, largely through the activity of the people themselves, that what we had hoped would be a test by and under the profession had become a test by the masses, largely uninstructed, upon the masses, with all the many variations of method which such a procedure implies. The same thing hap-



TABLE 1—Cases Of Poliomyelitis In White Persons, Birmingham And Jefferson County, Alabama, By Sprayed And Non-Sprayed Groups And By Age Periods, And Theoretical Numbers Of Cases For Sprayed Groups Based On Rate Among Non-Sprayed Group Of Surveyed Area

| Age             | Spray Status | 1 1/2 Wk.<br>7/18 | Persons Sprayed And Not Sprayed For Surveyed Area Week Ending : |      |      |      |      |                  |                                  | 7/15 to 8/22   |                    | Actual No.<br>Cases 2 Wks.<br>From 1st<br>Spray To<br>Onset | Theoretical Cases<br>Based On Non-<br>Sprayed Rate |     |
|-----------------|--------------|-------------------|---|------|------|------|------|------------------|----------------------------------|--|--------------------|---|--|-----|
|                 |              |                   | Persons Sprayed And Not Sprayed For Surveyed Area Week Ending : |      |      |      |      |                  |                                  | 7/15 to 8/22   |                    |   |  |     |
|                 |              |                   | 7/25  | 8/1  | 8/8  | 8/15 | 8/22 | Total<br>Persons | Weeks Of<br>Life 7/15<br>to 8/22 | Actual Cases<br>2 Wks. from<br>1st Spray<br>To Onset | Sprayed<br>On Rate |   |  |     |
| Under<br>1 Year | Sprayed      | 30                | 43  | 44   | 44   | 44   | 46   | 61               | 220.5                            | 0  | 1.9                | 450   | 0  | 2.4 |
|                 | Not Sprayed  | 31                | 18  | 17   | 17   | 17   | 15   |                  | 115.0                            | 1  |                    | 190   | 1  |     |
| 1 to 4          | Sprayed      | 124               | 210   | 243  | 251  | 254  | 264  | 316              | 1183.                            | 3  | 2.1                | 2503  | 8  | 3.1 |
|                 | Not Sprayed  | 192               | 106   | 73   | 65   | 62   | 52   |                  | 555.                             | 1  |                    | 815   | 1  |     |
| 5 to 9          | Sprayed      | 197               | 340   | 382  | 394  | 400  | 415  | 516              | 18.71                            | 2  | 1.9                | 3646  | 3  | 2.7 |
|                 | Not Sprayed  | 319               | 176   | 134  | 122  | 116  | 101  |                  | 967.0                            | 1  |                    | 1472  | 1  |     |
| 10 to 14        | Sprayed      | 210               | 382   | 433  | 441  | 443  | 453  | 572              | 2083.                            | 1  |                    | 4348  | 2  | 2.6 |
|                 | Not Sprayed  | 382               | 190   | 139  | 131  | 129  | 119  |                  | 1063.                            | 0  |                    | 1658  | 1  |     |
| 15 to 19        | Sprayed      | 154               | 279   | 324  | 357  | 340  | 347  | 470              | 1569.                            | 1  | 3.1                | 3304.   | 1  | 6.0 |
|                 | Not Sprayed  | 316               | 191   | 146  | 133  | 130  | 123  |                  | 1016.                            | 2  |                    | 1631  | 3  |     |
| 20 to 24        | Sprayed      | 135               | 234   | 271  | 275  | 275  | 279  | 457              | 1296.                            | 0  |                    | 2691.   | 0  |     |
|                 | Not Sprayed  | 392               | 203   | 166  | 162  | 162  | 158  |                  | 1008.                            | 0  |                    | 1798  | 0  |     |
| 25              | Sprayed      | 827               | 1444  | 1653 | 1683 | 1706 | 1741 | 2724             | 7956                             | 0  |                    | 16760.  | 0  |     |
|                 | Not Sprayed  | 1897              | 1280  | 1091 | 1041 | 1018 | 984  |                  | 7026                             | 0  |                    | 11941.  | 0  |     |

**TABLE 2**—Cases Of Poliomyelitis In Colored Persons, Birmingham And Jefferson County, Alabama, By Sprayed And Non-Sprayed Groups And Age Periods And Theoretical Number Of Cases For Sprayed Groups Based On Rate Among Non-Sprayed Groups

[illegible]

pened in Tennessee and Mississippi, where spraying was also instituted.

#### NUMBER OF PEOPLE SPRAYED

Birmingham and the surrounding county of Jefferson, Alabama, were selected as the most suitable location in which to study the effects of the chemicals. In order to determine the extent to which the spray had been used, a house-to-house survey was carried out in twenty representative districts of the city and in seven of the county. The canvass was made by a group of lay inspectors who had had previous experience in health department surveys. Each household in the twenty city areas and the most available ones in the seven county areas were visited and a record of the pertinent facts secured for each inmate. A total of 2,076 families comprised of 8,093 inmates were thus canvassed, of whom 5,010 or 61.9% sprayed at some time between July 15 and August 22. From a total of 5,097 white people there were 3,545 or 69.7% who had sprayed, while of 2,996 colored people 1,465 or 48.9% had employed the chemicals. Assuming the same rate of spraying for the whole area as obtained in the districts surveyed, it appears that we are dealing with sprayed and not sprayed groups of approximately 270,000 and 160,000 individuals, respectively. By reference to Tables 1 and 2 it may be noted that the very young and the older adults sprayed less than the more susceptible age group.

#### UNTOWARD RESULTS

Records (Table 3) as to the effects of the chemicals were secured from 4,631 individuals who sprayed from one to eight or more times. In 3,768 of these there was no complaint, while 885 or 20.8% of those reporting complained of uncomfortable but not serious conditions, such as headache for from one to 36 hours; nausea, usually after the first or second applications; temporary burning of the nose; head colds, and irritation of the nose or eyes. There were no instances of suspected idiosyncrasy to the chemicals encountered among the population of the surveyed areas. However, through requests made to physicians to report any serious results believed attributable to the spray, we have learned of seven instances, located in Alabama, Tennessee and Mississippi, of what appear to have

been idiosyncrasy, probably to the picric acid. In five of these cases the chief complaint was a rather severe local irritation of the nostrils followed by urticaria. Two cases reported by Dr. L. J. Rutledge of Mississippi are said to have developed acute nephritis, with hematuria and general anasarca, one after two and one after four applications at school. Both recovered and after a month were found apparently well. These cases occurred among a total of probably 2,000,000 persons sprayed in the three states. Other instances of hypersensitivity may have developed, but they were not brought to our attention. It is moreover probable that more unpleasant consequences would have developed had the spraying been more uniformly thorough.

TABLE 3

Number And Nature Of Complaints Following Employment  
Of Picric Acid-Alum Spray, Birmingham and Jefferson  
County, Alabama, Surveyed Districts

|   |       |
|---|-------|
| Headache—1 to 36 hours duration .....               | 242   |
| Nausea—usually after 1st or second spray only ..... | 149   |
| Burning of nose—temporary .....                     | 140   |
| Head cold .....                                     | *139  |
| Irritation of throat .....                          | 100   |
| Irritation of nose .....                            | 89    |
| Irritation of eyes .....                            | 9     |
| Nose bleed .....                                    | 8     |
| Earache .....                                       | 3     |
| Aggravated sinusitis .....                          | 3     |
| Nervousness .....                                   | 1     |
| Aching all over .....                               | 1     |
| Fever .....   | 1     |
| Effects not stated .....                            | 379   |
| Number of complaints .....                          | 3,768 |
| "Cured their cold" .....                            | 8     |
| Total persons supplying data .....                  | 4,631 |

#### OCCURRENCE OF POLIOMYELITIS IN THE BIRMINGHAM AREA

There is no contagious disease hospital in Alabama. Cases were largely treated in the homes, no written histories or charts were available and but few spinal taps were performed. It was therefore deemed advisable to confine our calculations to paralytic cases of which 67 were reported from the Birmingham area June 6 to September 26. Twenty cases of non-paralytic illness were eliminated from consideration, of which number 9 had not employed the spray, 4 had used it for less and 6 for more than two weeks before the onset of illness.

#### INFLUENCE OF THE SPRAY UPON THE INCIDENCE OF POLIOMYELITIS IN THE BIRMINGHAM AREA

Obviously it was not possible to strictly control this field trial by refusing the experimental prophylactic to every other person who applied; consequently, those who voluntarily elected to spray and not to



spray constituted the test and control groups for the study.

The number of persons who employed the spray increased from day to day so that the relative size of the two groups continually varied. It, therefore, became necessary to determine as accurately as possible when each sprayed individual of the surveyed areas began the applications.\* With this information at hand it was possible to calculate the number of sprayed and not-sprayed weeks of life lived by individuals of the two varying groups for the period covered by the survey. (Tables 1 and 2.)

In this compilation every person that sprayed, even one time, however inadequately, was considered as belonging to the sprayed group thereafter. Likewise, every case that developed after spraying, however faulty or inadequate the method, was attributed to the sprayed group. Several cases might with justice to the spray have been eliminated from consideration had we known how many of the sprayed group not developing the disease had similarly sprayed. It was not felt, however, that lay inspectors should be trusted to pass upon the efficiency of spraying.

If we are correct, the picric-alum spray exerts its protective effect by rendering the nasal membranes impervious to the virus; therefore, the spray could have no effect in preventing the disease when the virus had already entered the olfactory nerve. Now, if we assume the interval from invasion of the nerve to onset of symptoms to be from 7 to 10 days, and allowing 4 to 7 days for the repeated sprayings to induce a reasonable degree of resistance, we arrive at a period of about 14 days following the first spray before protection might be regularly expected. We have therefore ruled out of consideration all sprayed and unsprayed cases developing within two weeks following the institution of the spraying campaign, and all sprayed cases developing in less than 14 days from the first spraying. This leaves us 12 paralytic white cases for

consideration, 7 in sprayed and 5 in the non-sprayed individuals. Had the sprayed group suffered the same incidence, based on weeks of sprayed and not-sprayed life, as did the non-sprayed group, there should have been 9 cases instead of actually 7 in the group. (Table 1.) Applying the same reasoning to the colored cases of which there were 3 in the unsprayed group and none in the sprayed group, we find that in the latter there should theoretically have been 2.4 (Table 2). Combining colored and white, there were actually 7 cases in the sprayed group while theoretically we might have expected 11.4 cases.

When we consider the method of spraying practiced for the 7 failures credited to the spray, we find that all were home-sprayed.

1. One (W. M. 2) was sprayed according to schedule for 23 days before onset by means of a nebulizer which threw a scarcely visible vapor.

2. A young man (W. M. 17) sprayed but twice, the last time 19 days before onset of symptoms.

3. A child (W. M. 2) was sprayed according to schedule for 33 days prior to onset but the atomizer at the time of the investigation was defective and between 80 and 90 sprayings are said to have been made from a bottle of solution from which only 13 cc. had been removed.

4. Another (W. F. 3) was sprayed according to schedule for 35 days, the applications being made when the child was asleep.

5. Another (W. F. 8) was sprayed regularly for 3 weeks, one puff up each nostril.

6 & 7. (W. F. 2 and W. M. 9) were sprayed in the recommended manner and with approved equipment.

#### CASES OF POLIOMYELITIS DEVELOPING AFTER THE SURVEY

Following the survey, completed on August 22, fourteen additional cases of poliomyelitis developed in Birmingham and Jefferson County to September 26, 1936. However, no house to house survey was made thereafter. The weeks of sprayed and non-sprayed life for the period has therefore been calculated upon the assumption that no additional spraying was instituted after August 22. Any error thus introduced is against the spray, so we felt justified in

\*Determination of the date of the first spray was facilitated since general spraying began promptly following the first physicians' meeting on July 15, 1936, which was also the date on which the chemicals became rather generally available. Often the date of first spraying could also be fixed with reference to the development of poliomyelitis in some friend or person of the neighborhood.

considering 1 case (W. M. 15) who sprayed but once on August 8 and developed poliomyelitis 41 days later as belonging to the unsprayed group. A second case that had sprayed regularly from July 15 to August 15 had her tonsils removed on August 27 and developed poliomyelitis 10 days later. This operation so obviously breaks the natural barriers that this case has been eliminated from consideration. Thus, considering the whole period July 15 to September 26, we have a total of 14 sprayed and 7 unsprayed white cases (Table 1). Had the same rate prevailed in the sprayed as in the unsprayed, there should have been 16.8 cases in the treated group. Among the Negroes (Table 2), there were 5 cases, 2 in the sprayed group, while theoretically there should have been 4.9 cases. Thus, instead of 16 cases among the sprayed of both colors, we should have expected 21.7 (a reduction of 35%).

The history of the spraying in the late occurring cases was taken by the Department of Health nurses and shows many irregularities noted in the earlier cases with the additional criticism that many discontinued spraying with the decrease in reported cases.

Two had sprayed so irregularly that dates could not be approximated. One of the two had not sprayed for 3 to 4 weeks prior to onset. Two others had sprayed regularly but not at all for 4 and 8 weeks prior to onset of poliomyelitis.

Four are said to have sprayed regularly to the time of onset but the exact method employed is not known.

#### SPRAYED CASES OUTSIDE BIRMINGHAM

Sixteen cases of poliomyelitis reported prior to September 1 from outside the Birmingham area in Alabama and in Tennessee were also investigated. Four proved to be non-paralytic illnesses, 3 developed symptoms less than 9 days following the first spray, 3 sprayed every other day for one week then discontinued. The symptoms in these cases developed 9, 15 and 17 days, respectively, from the last spraying. The actual infection in these cases, therefore, probably took place at a time when protection should have been expected. The remaining 6 cases were, according to the history, regularly sprayed for from 18 to 54 days prior to onset of symptoms and the

method was in accordance with instructions. Two of the cases were, however, in chronic mouth breathers with gross nasal obstructions, and while possibly explainable on this basis, are nevertheless chargeable against the method since anatomic considerations play an unavoidable role.

#### DISCUSSION

Whether the results would have been better had the spraying been carried out more effectively is unknown, but the method employed in some cases was such that we could hardly have expected results, however effective the method when well applied.

The development of cases among persons sprayed according to instructions suggests, however, either that the chemicals are not effective for man or the advised method of application not trustworthy in lay hands. The apparent though small reduction in the expected number of sprayed cases suggests the latter, as does the experience of persons sprayed by both power and hand sprayers, for apparently the latter, judged by the subjective symptoms, is less effective in reaching the nasal vault than the former. Hand spraying was the usual method employed. Moreover, certain difficulties present themselves in spraying children which are not applicable in experimental animals. For instance, there was general agreement among persons applying the spray that many children, estimated as high as 50%, for the most susceptible age groups, actively resist the treatment and thus render spraying difficult.

Obviously further work on the method of applying solutions to the olfactory area is indicated.

#### CONCLUSIONS

1. Chemicals capable of blocking the olfactory route of infection must be thoroughly applied to the nasal vault if maximum protection is to be secured.

2. Many children actively resist and thus render spraying difficult.

3. Sympathetic parents, unfamiliar with the anatomy of the nose, are not, as a class, qualified to properly administer intranasal prophylactics.

4. A house to house survey revealed transitory complaints by 885 from among 4,631 sprayed individuals. Headache, temporary nausea, burning of nostrils, symptoms of



head cold, irritated throat, and irritation of the eyes, in the order named, were the most usual complaints. Had the applications of the chemicals been more thorough more unpleasant consequences might have developed.

5. Seven instances of hypersensitivity or of idiosyncrasy to the drugs were reported from the whole epidemic area.

6. The actual incidence of poliomyelitis in the group sprayed by whatever method was somewhat less than the calculated incidence based upon the rate in the unsprayed control group (16:21.7).

7. The occurrence of cases in persons who had sprayed for several weeks in the advised manner throws question upon the method.

8. In the face of an epidemic of poliomyelitis the people can be relied upon to employ any simple, inexpensive prophylactic method of promise.

9. It seems probable that the most effective method of application, as well as the most ideal solution, has not yet been found. Investigative work should therefore be continued.

---

## BUREAU OF LABORATORIES

James G. McAlpine, Ph. D., Director

### CARRIERS\*

#### VI. THE ROLE OF THE CARRIER IN CERTAIN DISEASES

(Continued)

From the public health standpoint the carrier of the diphtheria bacillus is important for two reasons. In the first place, the recrudescence of the disease each year in the fall is undoubtedly due to the fact that a certain proportion of the population, who appear to be healthy, harbor *C. diphtheriae* in their throats. Secondly, some naturally acquired immunity is taking place in both rural and urban communities; the carrier who is distributing a virulent germ in small doses, or a relatively avirulent one in perhaps larger amounts, is a factor in this wholesale immunization.

It is apparent that diphtheria occurs in epidemic form when a more or less new group of children begin to coalesce in large numbers. The carrier then distributes the

organisms to the non-immunes who, according to the dosage, either become ill or are immunized by the first or succeeding doses. Work which has been done by Dr. Webster and his associates at the Rockefeller Institute in New York and Dr. Topley and his colleagues in London has definitely indicated that the chance factor is most important as far as disease or immunity is concerned. The virulence of the organism and the amount to which the child is subjected are most important.

From the immunization point of view Hewitt and Bulloch<sup>1</sup> have asked a very significant question, namely, "Is efficient contact with diphtheria bacilli so prevalent that in the course of years 80-85 per cent of the surviving population will have experienced it?" In answering, they state: "In order to form some kind of an answer the carrier rate may be estimated." However, a carrier rate for any community must be evaluated by the season of the year. Zinsser<sup>2</sup> has written that "among diphtheria carriers the large majority are temporary carriers who get rid of the bacilli within a relatively short time. A certain percentage, however, remain chronic carriers. An accurate estimate of chronic carriers cannot be given since sufficient data are not available to furnish reliable averages."

Numerous diphtheria carrier surveys have been made but the criticisms cited above are applicable to all. One of the most complete records has been compiled in London where, since 1903, 74,000 children have been examined, and an average carrier rate of 6.3 per cent found. In Germany a rate of a little better than 5 per cent was obtained in two surveys while another yielded slightly more than 1.0 per cent. Recently Frost, Frobisher, Van Volkenburgh, and Levin<sup>3</sup> compared the carrier rate in Baltimore for the years 1921-24 with 1933-36.

---

1. Hewitt, R. T. and Bulloch, W.: *Corynebacterium Diphtheria and Diphtheroid Organisms, System of Bacteriology*. Vol. 5, Med. Res. Council, H. M. Stationery Office, London, 1930.

2. Zinsser, Hans: *The Prevention of Communicable Diseases*, Nelson Loose-Leaf Living Medicine, Vol. 7. Thomas Nelson & Sons, New York, 1929.

3. Frost, W. H., Frobisher, M. J., Van Volkenburgh, and Levin, M. L.: *Diphtheria in Baltimore: A Comparative Study of Morbidity, Carrier Prevalence and Antitoxic Immunity in 1921-24 and 1933-36*, Am. Jour. Hyg. 24: 68-586. No. 3, Nov. 1936.

---

\*Sixth in a series. The first appeared in the August issue.

Their conclusion is as follows: "The prevalence of infection with virulent *C. diphtheriae* in the general population (of the age-group 5-14) as determined by comparable methods within the season from November to March, inclusive, has diminished from 2.04 to 1.08 per cent."

Due to the fact, which was brought out at the American Public Health Association meeting in New Orleans, that the epidemiology of diphtheria is an exceedingly unsettled problem, a carrier survey is in progress at present in Alabama. It is hoped that a number of counties will be sampled at different seasons of the year. So far between two and three thousand children have been examined. In all cases, when possible, the organism has been isolated, studied biochemically and virulence tests made. Between three and four per cent of the children cultured have shown typical *C. diphtheriae*, but the number of positive virulence tests have been few. This has been done during the months of November and December, and undoubtedly the picture will be different for other seasons of the year.

BUREAU OF PREVENTABLE  
DISEASES

D. G. Gill, M. D., Director

COMMUNICABLE DISEASES DURING 1936

The number of cases of the various communicable diseases occurring in Alabama in the year 1936 as compared to the number reported in 1935 and the median incidence of the nine years, 1928-1936, is given in the following tabulation:

|                       | Cases | Cases | Median  |
|-----------------------|-------|-------|---------|
|                       | 1936  | 1935  | 1928-36 |
| Typhoid fever         | 492   | 482   | 772     |
| Typhus fever          | 369   | 292   | 237     |
| Malaria               | 8438  | 8632  | 6473    |
| Smallpox              | 13    | 42    | 187     |
| Measles               | 604   | 7224  | 4193    |
| Scarlet fever         | 732   | 643   | 1211    |
| Whooping cough        | 627   | 1436  | 1558    |
| Diphtheria            | 1087  | 1169  | 1595    |
| Influenza             | 19845 | 14535 | 14535   |
| Mumps                 | 2581  | 1074  | 911     |
| Poliomyelitis         | 392   | 61    | 58      |
| Encephalitis          | 17    | 29    | 29      |
| Chickenpox            | 1217  | 2112  | 1426    |
| Tetanus               | 65    | 61    | 57      |
| Tuberculosis          | 3141  | 3325  | 3610    |
| Pellagra              | 292   | 563   | 626     |
| Meningitis            | 97    | 83    | 83      |
| Pneumonia             | 5733  | 4449  | 3313    |
| Syphilis              | 11223 | 7346  | 1998    |
| Chaneroid             | 135   | 87    | 87      |
| Gonorrhea             | 3773  | 3570  | 2154    |
| Ophthalmia neonatorum | 19    | 20    | 19      |
| Trachoma              | 0     | 6     | 6       |
| Tularemia             | 10    | 15    | 9       |
| Undulant fever        | 43    | 54    | 20      |

As will be noted, the outstanding event was the occurrence of 392 cases of poliomyelitis. This was the first serious outbreak of this disease to be on record in Alabama and the problems created by its presence taxed the resources of the various health departments concerned.

Malaria continued to be a serious problem and the incidence of the disease was above the normal. Typhus fever showed a considerable increase over the preceding year. This disease reached an all-time high in 1933 and then, following intensive rat control work, decreased markedly in 1934. Since that time it has been gradually recurring and has been invading new areas of the state.

Influenza and pneumonia were both high due to an epidemic of influenza in the spring months. An interesting observation is the large number of cases of syphilis reported. For the past two years new clinic cases have been included in the reports of physicians and this is responsible for the apparent discrepancy from the "median." The reporting of malaria is admittedly poor and there were probably more new cases of this disease than of syphilis, but, with this exception and the exception of influenza, there were more cases of syphilis reported than any other communicable disease.

There were several favorable items in this annual balance sheet. Typhoid fever, for example, remained at a low level; smallpox was almost absent, while measles, scarlet fever and whooping cough maintained favorable numbers. Diphtheria showed a slight decrease over the preceding year and was the lowest on record since 1923. Pellagra also set a new low in cases reported.

There are many problems still to be solved, but progress is being made in the control of those diseases with specific means of prevention.

THE VENEREAL DISEASE CONFERENCE  
IN WASHINGTON

During the last week in December a conference on venereal disease control work was held in Washington, D. C. There were more than 900 delegates in attendance and the enthusiasm and interest displayed would seem to portend a reawakening movement to control venereal diseases. It is to be hoped that this reawakening will



be a permanent affair and not the short-lived one of World War years.

Under the able leadership of the Surgeon General, Dr. Parran, and Assistant Surgeon General, Dr. Vonderlehr, the venereal disease ship of state was steered away from dangerous shoals into channels of scientific knowledge. Although the conference was one on venereal diseases, yet syphilis was the most widely discussed, with gonorrhea trailing quite far behind. This, of course, may not be in keeping with the opinion of many urologists, but it has been felt that to control one disease thoroughly is, perhaps, far better than to control many haphazardly.

Dr. Parran, in his opening address, brought out the point that public sentiment is ahead of medical education. He stated, also, that many state laboratories need to be improved, that many hospitals are unwilling to admit venereal disease cases, and that many prenatal clinics and physicians in private practice do not take blood routinely for a Wassermann reaction. "There is a great need for many guiding principles" was his final statement.

The lack of venereal disease control programs in many states and inadequate programs in other states was clearly shown. The various states expend on venereal disease control from one mill to three cents per capita, with most states being in the lower expenditure class. Without money little can be done to control the spread and ravages of these diseases. Adequate control of venereal diseases revolves around the following points: (1) More liberal use of anti-venereal disease drugs; (2) general use of the darkfield; (3) more widespread use of epidemiologic investigations and follow-up work; (4) better morbidity and mortality reporting; (5) improved diagnoses; (6) more liberal allotment of money.

Great stress was laid upon the modern treatment of early syphilis as outlined by the United States Public Health Service and the Cooperative Clinical Group (C. C. G.). This is a continuous system whereby the patient receives an antileptic drug once each week until infectiousness is controlled or the disease eradicated. Twenty injections of an arsenical and 20 injections of a bismuth compound are necessary to control infectiousness, whereas 30-40 injections of an arsenical and 40 injections of a bis-

moth compound are necessary for eradication of the disease. But treatment alone will not control syphilis because so many do not seek treatment until they have had their infection for sometime. Continuous treatment was advocated in all cases of syphilis except in late syphilis and in persons of middle age or beyond. The importance of beginning treatment in prenatal syphilitics before the fifth month of pregnancy and continuing treatment throughout the pregnancy was clearly stated.

In the discussion on epidemiologic investigations, it was brought out that investigations ought to be made primarily by the private physician. But that investigations, when made, were usually done by the health officials. It was shown that at least twenty-five per cent of the sources of early syphilis can be located and brought under treatment. This, perhaps, is a low estimate when full-time investigators are employed. Adequate treatment, epidemiologic investigations and follow-up work are the keystones around which syphilis control revolves. Follow-up work can be greatly reduced by courteous and efficient clinic service. "A smile in the clinic is worth two follow-up workers."

Morbidity and mortality statistics are the only means whereby health departments judge the extent of their syphilis and other venereal disease problems. Since morbidity reporting is usually quite incomplete much discussion was given to methods for improved reporting. Recommendations were made that report cards contain the essential data for statistical studies, but should be simple enough to improve reporting.

For better co-operation between physicians and health officials in the control of these diseases, it was suggested that more adequate instructions in venereal control be given medical embryos and the dissemination of the newer methods of venereal disease control to practicing physicians should be included in health department programs. It was also suggested that refresher courses be held for practicing physicians.

Educational methods used in the control of tuberculosis were shown to be as applicable to venereal diseases. It became merely a question of breaking down the old taboo and making syphilis and gonorrhea "parlor" words.

W. H. Y. S.

### THE IMMUNIZATION STATUS OF THE WHITE SCHOOL CHILDREN IN COOSA COUNTY

At the beginning of the school term in Coosa County, a survey was made to determine the immunization status of the white school children in the high schools and elementary grades. The immunization status was reported as of that date and no effort was made at that time to promote immunizations, since it was deemed advisable to do this later in the school term. This report includes children entering school this year and who may not have had the opportunity to conveniently obtain vaccinations and inoculations as did the other children at school during the past year. As an introductory remark, it might be noted that the health department in this county was organized one year ago, November 1, 1935.

The immunization status of 1,986 children was obtained. This represents the entire white school population at the opening of the 1936-37 school term. 1,163 or 58% have been vaccinated; out of this number 1,032 were vaccinated by the County Health Officer and Nurse during the past year. Thus, only about 11% had been vaccinated prior to the existence of the County Health Department. 1,190 children or approximately 54% have completed the typhoid inoculations within the last two years.

In determining the immunization status against diphtheria, children from six to ten years were included in the survey and there were 815 in number. 569 children have either received alum-precipitated toxoid or had negative Schick tests. Therefore, this number which represents 70% of the children in this group are protected against diphtheria. Likewise, the immunizations against typhoid and diphtheria have been largely promoted by the County Health Department.—*Contributed by W. D. Burkhalter, M. D., Health Officer of Coosa County, Alabama.*

### BUREAU OF HYGIENE AND NURSING

B. F. Austin, M. D., Director

#### PUERPERAL INFECTION

Study of maternal mortality records of Alabama reveals an astounding number of deaths due to puerperal infection. Abundant evidence has accumulated that leaves

no doubt as to the bacterial nature of the disease. In view of the application of aseptic technic in obstetrics we apparently should no longer have puerperal infection as a tormenting complication. However, the situation presents a serious problem in obstetrics and one in which obstetric attendants can take no particular pride.

The freshly delivered uterus is ideal soil for the development of bacteria of all varieties and any organisms pathogenic for man if introduced into the birth canal at the time of labor will grow and give rise to infection. The question, how and when these organisms may gain entrance to the birth canal is, therefore, of paramount importance. At least five sources of infection may be considered in attempting to answer this question: coitus, the fingers of the patient, the blood stream, auto infection and direct contact infection at the time of labor or early in the puerperium.

The number is very small but undoubtedly women do become infected from coitus shortly before labor. Some have given a history of the membranes having ruptured during intercourse. Such cases occur rarely and in the more ignorant classes. They occur with sufficient frequency, however, to call for instruction against intercourse in the latter months of pregnancy.

The number of women who tend to place their fingers about the genitalia during labor and the puerperium is not great but of sufficient importance that all should be warned against such source of contamination.

We know very little of the relation between blood stream infection from focal sources and puerperal septicemia. The apparent seasonal variation in puerperal infection indicates that blood infection probably plays a definite role in the disease.

Regarding auto infection, there is abundant evidence that women normally harbor many organisms in the vagina and cervix. The vast majority of the severe and fatal cases, however, are due to the hemolytic streptococcus and this type of organism is seldom found in the female genital tract. Undoubtedly many mild cases of infection originate from organisms already present in the birth canal at the time of labor.

There is little doubt that the majority of severe cases of puerperal infection are due to contact. That is, the organisms are in-



troduced into the birth canal from outside sources at the time of labor. The answer, therefore, to the question as to whether puerperal infection can be prevented must be two-fold. Cases of puerperal infection developing from organisms harbored in the female genital tract will continue to occur until an effective method of sterilizing the vagina and cervix is known. However, not many of these patients will be seriously ill and few of them will die. The majority of the more serious cases can usually be prevented because they are introduced from outside sources.

Many factors must be considered in the prevention of puerperal infection. Proper prenatal care is of great importance. Many women go into labor when they are in poor physical condition. Their resistance to infection is at a low ebb. Expectant mothers are urged to see their physicians early and follow the advice given. Physicians are urged to give thoughtful study to each pregnant woman who applies for his services and to give the best of prenatal advice science has to offer.

The method of the conduct of deliveries likewise deserves serious consideration. Those principles of aseptic technic in which physicians have been trained in surgery should be carried out.

The practice of making repeated vaginal examinations during labor contributes perhaps more than any other one thing to the high rate of puerperal infection. While highly virulent organisms may not be in the vagina and cervix that is no reason they would not appear on the external genitalia, and surrounding structures. It is improbable that we have an antiseptic that can be applied to these structures to kill the pathogenic organisms that may be present. Vaginal examinations, therefore, cannot be made without the possibility of carrying dangerous bacteria into the birth canal. Hence, it is urged that vaginal examination during labor be discontinued unless particularly indicated and then only with the use of rubber gloves, scrubbing the parts and applying aseptic precautions.

All operative procedures in connection with labor should be given careful consideration before being instituted. Routine induction of labor in women who go beyond the calculated date, episiotomy, forceps, version and extraction, insertion of hand of

the attendant into vagina to aid in delivery of placenta are all procedures to be condemned. The inordinate use of forceps and resort to cesarean section add to the maternal death rate.

The medical attendant in obstetrics has a serious responsibility from the first visit of the pregnant woman until he makes the final postpartum examination. If there is to be a reduction in puerperal infection he must exert vigilance in aseptic procedure when making examinations and delivery and give intelligent prenatal advice at all times.

## BUREAU OF SANITATION

G. H. Hazlehurst, C. E., M. C. E., Director

### THE IMPORTANCE OF TRAINED SANITATION OFFICERS

It is difficult for a county health department to plan or carry out a well-balanced public health program without the services of a sanitation officer. To properly handle the problem of excreta disposal in the average Alabama county is a full-time job in itself, to say nothing of the problems presented by malaria and typhus fever. There is also the necessity for regular inspection of food-handling establishments, dairies, and the like, if work in the field of sanitation is to be complete. It can readily be seen that neither the health officer nor nurse has time or specific training to cope with these problems.

It can be seen also that to be a successful sanitation officer one must possess certain qualifications. He should be well founded in the basic principles of engineering, bacteriology, communicable diseases, and food sanitation, as well as be tactful, energetic, and have ability as a public speaker.

During the summer of 1934, due to the drastic reductions in appropriations, there remained only 14 counties in Alabama that were able to retain the services of a sanitation officer. Through financial assistance rendered by the U. S. Public Health Service, additional personnel was employed in November 1934 and a four-weeks' training school was held in Opelika, Alabama. This was the first school to be conducted in several years for training county personnel. Dr. A. H. Graham, Director, Lee County Tuberculosis Research Project, assisted by the Lee County Health Unit, directed the school work. The State Department of

Health sent the directors of each of its bureaus to lecture and instruct along their respective endeavors. The Bureau of Sanitation detailed one engineer to assist in the field work and outline the recommended practices throughout the state. During the four weeks the trainees were able to secure only the fundamental principles of sanitation and the field work necessary for standard construction. Again in December 1934, five additional men received this training at Opelika under similar arrangements.

With the funds made available by the Social Security Act, twelve more men were allowed the privilege of training for the position of sanitation officer during April 1935. This group received lectures and instructions from the bureau directors in Montgomery for one week and three weeks of field experience was secured in Lee County.

The men attending these various schools were selected with care. Applicants who were college graduates in engineering and those with practical experience in engineering work were given first consideration. Some of the trainees were selected from the group of engineers who had proved their ability while serving as county supervisors on state-wide sanitation or malaria control projects operative under the several relief agencies and to which the health department had given technical supervision.

More intensive training of county health unit personnel has been recognized as a necessary function if efficient control of disease is to be secured. The Social Security Board established minimum requirements in reference to qualifications and training of this personnel. Vanderbilt University and the University of South Carolina introduced special courses for sanitation officers which would meet the requirements of the Social Security Board, and Alabama was allotted funds sufficient to send four men to the first semester of the School at Vanderbilt. The outline of the course included:

|  | Lectures<br>Hours | Laboratory<br>Hours |
|--|-------------------|---------------------|
| Drawing .....                                  | 6                 | 18                  |
| Biostatistics .....                            | 6                 | 18                  |
| Public Health Administration...                | 12                | 6                   |
| Communicable Disease and<br>Parasitology ..... | 24                | 12                  |

|  |    |    |
|--|----|----|
| Sanitary Bacteriology .....  | 24 | 72 |
| Materials of Construction .....  | 12 | 9  |
| Food Sanitation .....  | 12 | 36 |
| Sanitation 1—<br>(Water Supply, Sewage<br>Disposal and Sewer Sys-<br>tems) .....                                   | 12 | 18 |
| Sanitation 2—<br>(Excreta Disposal, Rural<br>Sanitation, Swimming Pools<br>and Economics of Sanita-<br>tion) ..... | 36 | 18 |

These four men have completed the course, including final examinations on the subjects, and are securing the fourth month of training in the field under the direction of the Alabama State Department of Public Health.

On January 1, 1937, fifty-six of the 67 counties in Alabama had full-time health departments and 40 of these counties had sanitation officers as part of their personnel. The goal, that every county have a health unit with a sanitation officer, has not yet been reached but the prospect of obtaining this end is much brighter now than it has been in the past.

The importance of proper training for those entering the public health field and additional instructions for the more experienced workers should not be overlooked.

CURRENT STATISTICS

\*PREVALENCE OF COMMUNICABLE  
DISEASES IN ALABAMA  
1936

|                             | Nov. | Dec. | Estimated<br>Expectancy<br>Dec. |
|-----------------------------|------|------|---------------------------------|
| Typhoid .....               | 33   | 21   | 40                              |
| Typhus .....                | 29   | 43   | 11                              |
| Malaria .....               | 722  | 167  | 112                             |
| Smallpox .....              | 0    | 0    | 7                               |
| Measles .....               | 4    | 8    | 337                             |
| Scarlet fever .....         | 107  | 92   | 164                             |
| Whooping cough .....        | 24   | 32   | 97                              |
| Diphtheria .....            | 204  | 112  | 214                             |
| Influenza .....             | 223  | 441  | 411                             |
| Mumps .....                 | 78   | 65   | 57                              |
| Poliomyelitis .....         | 7    | 8    | 2                               |
| Encephalitis .....          | 3    | 1    | 2                               |
| Chickenpox .....            | 49   | 94   | 204                             |
| Tetanus .....               | 5    | 4    | 3                               |
| Tuberculosis .....          | 226  | 253  | 243                             |
| Pellagra .....              | 5    | 9    | 22                              |
| Meningitis .....            | 5    | 6    | 6                               |
| Pneumonia .....             | 172  | 398  | 407                             |
| Syphilis .....              | 870  | 703  | 155                             |
| Chancroid .....             | 11   | 9    | 3                               |
| Gonorrhea .....             | 305  | 284  | 156                             |
| Ophthalmia neonatorum ..... | 1    | 2    | 2                               |
| Trachoma .....              | 0    | 0    | 0                               |
| Tularemia .....             | 0    | 1    | 1                               |
| Undulant fever .....        | 2    | 2    | 3                               |
| Dengue .....                | 0    | 0    | 0                               |
| Amebic dysentery .....      | 4    | 5    | 0                               |
| Rabies—Human cases .....    | 0    | 1    | 0                               |
| Positive animal heads ..... | 68   | 87   | 0                               |

\*As reported by physicians and including deaths not reported as cases.  
The Estimated Expectancy represents the median incidence of the past nine years. With the venereal diseases, clinic cases were not included prior to this year.



## Book Abstracts and Reviews

**Medical Clinics of North America:** Issued serially, one number every other month. Volume 20, Number 2. St. Louis Number—September 1936. Octavo of 350 pages with 24 illustrations. Paper, \$12.00; Cloth, \$16.00 net. Philadelphia and London. W. B. Saunders Company, 1936.

The September number of the *Medical Clinics of North America* contains an excellent symposium dealing with the mild endocrine disturbances which one is so likely to encounter in one's practice. There is also an excellent article on emphysema by Alexander, one on practical aspects of eczema and a third on differential diagnosis of diseases of the breast—all of which are of great value.

The *Medical Clinics of North America* have proved to the reviewer one of the most practical volumes in his library. A wide diversity of subjects are covered. The material is presented from the aspect of practical value and are, as a rule, the results of large clinical experience. None of the articles deals with laboratory experimentation or theoretical investigations. Practicability is the very essence of each chapter in the *Clinics'* book. Whether the contributors come from St. Louis, San Francisco, New York, Boston or New Orleans, outstanding men have always been selected to contribute articles dealing with the subject with which they are most familiar.

C. K. W.

**Bright's Disease and Arterial Hypertension.** By Willard J. Stone, B.Sc., M.D., F.A.C.P., Clinical Professor of Medicine, School of Medicine, University of Southern California, Los Angeles; Attending Physician to the Pasadena Hospital, Pasadena, California. 352 pages with 31 illustrations. Philadelphia and London. W. B. Saunders Company, 1936. Cloth, \$5.00 net.

Doctor Stone has written a book which should bring order out of chaos which has so long existed in the field of Bright's disease. Many classifications of this disease have been in existence in the past and to these the author has added one which seems at last to afford a correlation between the clinical and pathological findings.

The physiology of the kidney is briefly presented with observations on the relation of the kidneys to the water balance and edema. The various tests of renal function are briefly described as are the various tests for the determination of the retention products in the blood. The clinical picture and laboratory findings in renal insufficiency are presented, after which the various types of Bright's disease—acute, chronic, hemorrhagic diseases, degenerative Bright's disease and arteriosclerotic Bright's disease—are described. This volume should serve as a land mark in the understanding of a disease about which so much doubt has prevailed in the past.

C. K. W.

**New and Non-Official Remedies:** Containing descriptions of the articles which stand accepted by the Council on Pharmacy and Chemistry of the American Medical Association on January 1, 1936. Published by the American Medical Association, 535 North Dearborn Street, Chicago, Ill. Cloth.

*New and Non-Official Remedies* is a book in which are listed and described various pharmaceutical preparations accepted by the Council on Pharmacy and Chemistry of the American Medical Association as of January 1, 1936. The descriptions of accepted articles are based in part on investigations made by the Council and partly on

evidence or information supplied by the manufacturers. A few items included in the 1935 edition have been left out of the 1936 edition, either because they have been withdrawn from the market or have failed to conform to the rules which govern the recognition of articles. The statements concerning the actions, uses or dosage of many items have been revised. The statement of composition, of standard of purity, identity, or strength or of physical qualities has been revised in many cases.

The busy practitioner of medicine is approached daily by representatives of drug houses who offer him various new preparations with claims of unlimited value. Many physicians have assumed the attitude that a preparation should not be used (except for experimental work) unless it has been previously approved by the Council on Pharmacy and Chemistry of the American Medical Association. In order to understand the nature of many of the newer remedies, their dosage, mode of action, indications and contraindications, *New and Non-Official Remedies* will prove of great value.

C. K. W.

**Physical Diagnosis.** By Ralph H. Major, M. D., Professor of Medicine in the University of Kansas. 457 pages with 427 illustrations. Philadelphia and London: W. B. Saunders Company, 1937. Cloth, \$5.00 net.

This new volume of about 400 pages is one of the most interesting books on physical diagnosis that the reviewer has had the pleasure of reading. Several features contribute to the interest of the book. These include excellent illustrations, verbatim quotations from the works of authors making epic contributions to the routine neurologic examination and a chapter devoted to the subject of pain. Unfortunately, the book on pain is lacking in detail with no reference whatsoever to the important subject of pain in the back. The description of skin diseases is also inadequate. Even after allowance for that the book deals with physical examination rather than dermatology. The section dealing with the examination of female genitals and the rectum is also inadequate. With the correction of these minor defects, a second edition of this volume should prove outstanding both from the standpoint of interest as well as from the standpoint of practicability. As a text-book this is an excellent volume; as a reference book for the practitioner it should prove of almost equal value. The internist will find it somewhat lacking in details.

C. K. W.

**Laboratory Manual for Chemical and Bacterial Analysis of Water and Sewage, Second Edition:** By Frank R. Theroux, M.C.E., Associate Professor of Civil Engineering, Michigan State College; Edward F. Eldridge, M.S., Engineering Research Assistant, Michigan State College; and W. Leroy Mallmann, P.H.D., Associate Professor of Bacteriology, Michigan State College. 228 pages. New York and London, McGraw-Hill Book Company, Inc., 1936. Cloth, \$2.50 net.

This book is a simple and concise laboratory manual for chemical and bacterial analysis of water and sewage. It is an improvement over the first edition, "Chemical Analysis of Water and Sewage," published in 1935, mainly in that it includes bacterial methods. Changes and additions, including certain references, discussions and equa-

tions of chemistry, have also been made which clarify the methods of chemical analysis.

The first part of the manual deals with methods of chemical analysis of water, sewage, and polluted water; preparation of reagents and standard solutions, and a general discussion of chemistry, and related topics. The second part deals with bacteriologic analysis of water and sewage as regards sampling, procedures, preparation of media and solutions, and a general discussion of bacteriology.

This manual should be of valuable aid to waterworks' and sewage treatment engineers, sanitary engineers and chemists, who are called upon to make routine or periodic laboratory determinations on water and sewage or to interpret the results of such determinations.

It should be of particular value to those engaged in plant operation or supervision, who, because of lack of technical training, must rely upon specific directions for carrying out the steps involved.

T. H. M.

---

**Stedman's Medical Dictionary:** Compiled by Dr. Thomas Lathrop Stedman, Editor of the Twentieth Century Practice of Medicine, of the Reference Handbook of the Medical Sciences, and of The Nurse's Medical Lexicon; and formerly Editor of the Medical Record. 1,291 pages, 194 text illustrations, with convenient index. Fabrikoid cover. Price, \$7.50. Baltimore. William Wood and Co., 1936.

The new edition of Stedman's Medical Dictionary is quite complete. The fact that this is the thirteenth edition of this volume and running over a period of some twenty-five years is evidence enough that it serves a valued and useful purpose. The author, Dr. Thomas Lathrop Stedman, throughout his long years of professional life, is now so well known and entrenched, through his many contributions to the medical literature of this country, as to need no introduction to the physicians of America.

The pronunciation and derivation are given for more than 15,000 medical, surgical, pharmacal, veterinary and other scientific terms. Many new terms and words have been added, thereby bringing this volume right up to the minute. It is well illustrated. For the more recent graduate of the present generation, whose premedical training likely scorned a knowledge of a thing so utterly "dead" as the Greek language now appears to be, the abandoning of the use of the Greek letters, when giving the etymology of a word, will certainly be most welcome.

In the appendix a table of drugs and other important tables are given. The appendix also gives the new nomenclature in Latin and English as adopted by the Anatomical Society of Great Britain and Ireland, with the Basle anatomical nomenclature (B. N. A.) equivalents. A list in the appendix too of the pathogenic microparasites are given alphabetically by their common names, with the nomenclature given by Bergey in italics. This is followed by a table giving the essential data of morphology, staining characteristics, etc., with the mode of infection for pathogenic organisms.

W. H. Y. S.

**Medical Morals and Manners:** By Hubert A. Royster, M. D., Raleigh, North Carolina. Chapel Hill. The University of North Carolina Press. Price, \$2.50.

The author of this interesting and delightful little volume of more than 300 pages is no stranger to Alabama's medical profession; in fact, to its "oldsters" who have been on the surgical firing line for years, Dr. Royster's frequent contributions to the medical literature have become quite familiar. In 1925, the Alabama medical profession paid signal honour to his literary and scientific attainments when he was chosen to deliver the Jerome Cochran Memorial Address at its annual meeting of that year. The topic chosen on this occasion by Dr. Royster was, "The Surgeon's Heritage and Outlook," in which the author, after sketching the evolutionary development of the surgical art, sounded valuable and timely notes of warning for the guidance of the present and future generations lest the spirit of commercialism too strongly permeate the profession of surgery and medicine. This volume represents the assemblage and grouping of the more important papers and addresses published by the author during the forty years of his active professional career; and for him, according to latest reports, the end is not yet; for he is still actively *in harness*, working vigorously and recording, with his trenchant pen, many valuable observations to serve as guide posts to those who follow after.

Every physician interested in the evolution and progress of his profession, and more particularly the Southern physician, should have in his library for ready reference this little volume. It makes a valuable companion piece to "Aequanimitas with Other Addresses," given some years ago to the profession by Osler.

J. N. B.

---

**Conservative Treatment of Appendiceal Peritonitis**—The treatment of acute appendicitis should always consist of removal of the diseased viscus before the infection has extended beyond the confines of the appendix. Although there is no conservative treatment of acute appendicitis, many times the inflammation in the appendix will subside spontaneously if the gastro-intestinal tract is put at rest, similarly as a cutaneous infection subsides under conservative therapy. Because, however, of the greatly increased morbidity and mortality in those cases in which the infection has spread beyond the confines of the appendix, and because no one can designate which case will subside spontaneously, the treatment of every case of acute appendicitis should consist of immediate extirpation of the viscus before the infection has extended beyond the appendix.

Unfortunately, many patients are seen with appendicitis in whom the infection already has extended beyond the appendix. It is in such cases that the conservative treatment often is justified, and offers a much better prognosis than the immediate removal of the appendix.—*Ochsner, Texas State J. Med., January '37.*



# THE JOURNAL

OF

## The Medical Association of The State of Alabama

Published Under the Auspices of the Board of Censors

Vol. 6, No. 9

Montgomery, Alabama

March 1937

### SOME RECENT ADVANCES IN ORTHOPEDIC SURGERY

By  
S. RALPH TERHUNE, M. D.  
Birmingham, Ala.

In China, some 6,000 years B. C., Whang Ti described the circulation of the blood fairly accurately.<sup>1</sup> According to historical records, the Chinese practiced cadaver dissection as early as 2697 B. C. In the second century, Anno Domini, Hua Tu did laparotomies under general anesthesia produced by the administration of *Cannabis indica*. Hua Tu is also credited with being the first to stress the value of exercise in the treatment of many disorders. He wrote: "I have an Art called Frolics of the Five Animals, namely, a bear, a tiger, a stag, a monkey and a bird. Whenever you feel unwell, stand up and imitate the movements of one of these animals; when you feel more comfortable and in perspiration, put rice powder over your body, and you will feel quite nimble and have a good appetite."

The majority of recent developments in medicine are, for the most part, direct evolutionary results of such older work. Orthopedic surgery is looked upon as a comparatively new specialty in the aesculapian science; but, if modern refinements are put aside and older literature delved into, its principles, too, will be found to be mellowed by age.

Massage also had its inception in ancient China as a form of therapy. In the past few years, its value has been definitely acknowledged in the treatment of muscular and joint ailments. Manipulation of the spine in old chronic spinal disorders is generally recognized as an important therapeutic procedure.<sup>2</sup>

In 1935, Mixter, following the work of Schmorl, accurately described another form

of spinal disorder which gives a similar picture to a back strain and appropriately labeled it herniation of the intervertebral disc into the spinal canal.<sup>3</sup> He reported 34 cases, all of which suffered with pain in the back and legs, due to pressure on the nerve roots. The removal of the offending disc in each instance resulted in freedom from symptoms. This diagnosis is being gradually accepted generally, and, before long, it will probably be a routine procedure to x-ray the lower spine of chronic low back sufferers who have not been relieved by ordinary measures, after the injection of lipiodol into the spinal canal. Lipiodol injection in such a manner seems to be justified in all such cases after other measures have been exhausted and when the spinal fluid shows an increase in total protein content.

In 1935, Morton<sup>4</sup> published a book on the human foot that bids fair to change many of our old deeply rooted ideas about the development and ailments of the foot. He has given the clearest and most logical explanation to date of disorders of the foot based on analysis of its evolution. The staticometer definitely shows that the transverse metatarsal arch is not formed by the heads of the metatarsal bones but that each of the metatarsal heads bears the same amount of weight with the exception of the first which bears twice as much as any other toe, due to its having two weight-bearing surfaces: the two sesamoids. He bases functional disorders on findings that suggest congenital developmental defects; namely, a short first metatarsal, backward displaced sesamoids, and abnormal mobility of the first metatarsal segment. In other words, such defects produce faulty weight bearing and this produces symp-

1. Charr, Robert: Ancient Chinese Medicine, *Ann. Med. Hist.* 8: 242 (May) 1936.

2. Mennell, James: *Backache*. Philadelphia. P. Blakiston's Sons & Co. 2nd Ed. 1935.

3. Mixter, W. J., and Ayer, J. B.: *Herniation or Rupture of Intervertebral Disc into Spinal Canal*, *New Eng. J. of Med.* 213: 385 (Aug. 29) 1935.

4. Morton, D. J.: *The Human Foot*. New York. Columbia University Press, 1935.

toms. Most of the feet which show such defects will also show by x-ray a hypertrophy of the shaft of the second metatarsal due to this bone bearing more than its normal share of weight. The logical treatment of such cases evolves itself into supplying a lift under the head of the first metatarsal by means of an insole with an elevated platform under this region. This relieves the pain of many so-called fallen arches due to the fact that the first metatarsal can again assume its normal share of the body weight.

In 1905, Lane<sup>5</sup> discussed internal fixation of fractures of the neck of the femur, but not until 1931 was this method made practical. In that year, Smith-Petersen published his results in 24 cases which he had fixed internally with a 3-flanged steel nail.<sup>6</sup> This paper stimulated the thoughts of other men along the same lines and now there is a host of modifications and improvements over his original method.<sup>7</sup> At present, it is possible to make a small incision along the shaft of the femur just under the great trochanter, under local anesthesia, drive a steel nail or pin through the neck and into the head, after reduction of the fracture, apply no after fixation, and expect a good result in a greater percentage of cases than in those treated by the older methods. No one who has had any experience with these fractures, especially in aged individuals, could doubt the efficacy of this method over older methods.

In 1933, Phemister<sup>8</sup> described a method of operative arrestment of longitudinal growth of bones in the treatment of deformities. He showed how selected cases of inequality of length of limbs could be treated by epiphysio-diaphyseal fusion, arresting growth in the longer limb and thereby approximating or equalizing limb lengths at the end of the growth period. This work lacks the test of time, but it

seems logical and is becoming an acceptable procedure in more and more clinics. Standardization as to the degree of surgical destruction of the epiphyseal plates necessary in accordance with the age and rate of growth expected is gradually being worked out. What a boon this procedure would be to many cases with shortened limbs as a result of poliomyelitis. The method is also being applied to angular deformities of the wrist and ankle, which are the result of disproportion of length of the two bones of the forearm or leg. Unilateral or complete arrest of growth in the longer bone at the appropriate age improves the deformity.

In 1934, Codman, in his book on "The Shoulder,"<sup>9</sup> called attention to the frequency of rupture of the supraspinatus tendon due to trauma to that region and the value of immediate recognition of the condition. In industrial work, these cases are more expensive to insurers than all other types of shoulder injuries combined. He summarized the typical background of such an injury as follows: "The patient is usually a laborer over 40 years of age with no symptoms in the shoulder prior to the accident and with an adequate injury, usually a fall, followed by an immediate, sharp, brief pain (severe pain on the following night), with a loss of power in elevation of the arm and with a negative x-ray. Examination reveals a tender point, a sulcus, and an eminence at the insertion of the supraspinatus, which causes a jog, a wince, and soft crepitus as the tuberosity disappears under the acromion when the arm is elevated, and, usually also, as it reappears during descent of the arm." With such findings, early exploration and suture of the tendon will lower the incidence of chronically disabled, painful shoulders.

The study of the physiology and pathology of the epiphyses has always been interesting. Recently, Aitken<sup>10</sup> has furnished us with some very valuable information as to whether to expect a growth disturbance or not, after fractures involving the epiphyses in young individuals. From his large series, he concludes that a fracture

5. Lane, Sir Wm. Arbuthnot: *The Operative Treatment of Fractures*. London, Medical Publishing Co. 1905.

6. Smith-Petersen, M. N., Cave, E. F.; and Van Gorder, G. W.: *Intracapsular Fractures of the Neck of the Femur. Treatment by Internal Fixation*, *Archiv. Surg.* 8: 715, 1931.

7. Watson-Jones, R.: *Fractures of the Neck of the Femur*, *Brit. J. Surg.* 23: 787 (April) 1936.

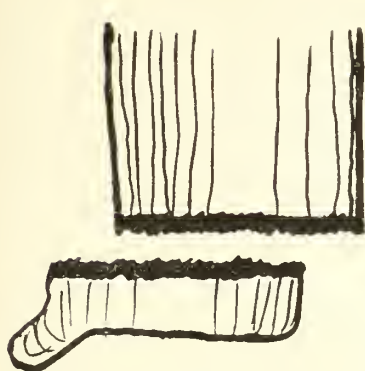
8. Phemister, D. B.: *Operative Arrestment of Longitudinal Growth of Bones in the Treatment of Deformities*, *Bone and Joint Surg.* 15: 1 (Jan.) 1933.

9. Codman, E. A.: *The Shoulder*. Thomas Todd Co. (Philadelphia). 1934.

10. Aitken, A. P.: *Fractures Through the Epiphyses*. Read at Meeting of New Eng. Regional Fracture Committee of Amer. Coll. of Surgeons. Boston, Sept. 19, 1936.

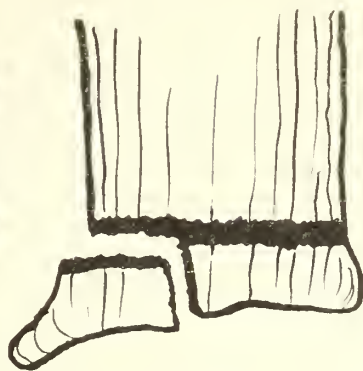


# TYPES OF EPIPHYSEAL FRACTURES IN RELATION TO GROWTH DISTURBANCES



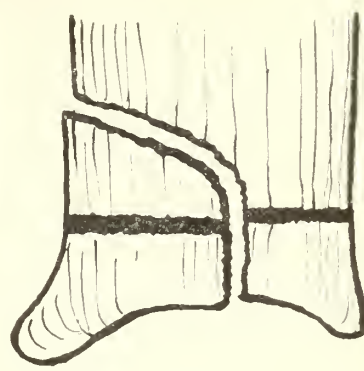
Type 1

Directly through epiphyseal cartilage plate. Can be replaced in almost exact apposition. No growth disturbance follows.



Type 2

Through part of cartilage plate, then curving out through articular surface. Fragment cannot be replaced accurately in as many cases as Type 1. Growth disturbance follows in 40% of such cases.



Type 3

Across epiphyseal cartilage plate with fragmentation of articular surface. Cannot often be replaced accurately. Growth disturbance follows in almost 100% of such cases.

directly through the plane of an epiphyseal plate nearly always produces fragments which are usually replaced in exact anatomic alignment and no growth disturbance results. In the type of case where the fracture line is partly through the plane of the epiphyseal plate and then curves so as to fragment the adjoining epiphysis, the reduction cannot be as accurate as the first type and so a growth disturbance is much more likely to follow. A fracture directly crossing the plane of the epiphyseal plate with fragmentation nearly always gives a resulting growth disturbance because reduction in this type can never be perfect enough to restore the exact alignment of the involved epiphysis. He further concludes that, if deformity is going to occur, it will do so regardless of adequate treatment of the fracture.

Wilson has recently published a very excellent resume' of his experience with cases of adolescent epiphysiolysis of the hip or slipping of the upper femoral epiphysis.<sup>11</sup> He maintains that it is probably caused by a disturbance of the normal process of epiphyseal ossification resulting from endocrine dysfunction, and trauma or strain acting in combination. He concludes that the best treatment is open reduction in all

cases as soon as recognized, followed by fixation with a Smith-Petersen nail. The nail maintains position of the fragments and stimulates the bridging of the faulty epiphysis.

Many more new developments could be mentioned but the above will serve to illustrate the trends of thought that are enlarging the field of usefulness of modern orthopedic surgery.

2121 Highland Avenue.

---

**Japan's Bad Health Slump**—The Association for Encouraging Science in Japan, in response to the general expressions of dismay about the fall in the level of the national health, held its first meeting to consider methods for coping with the regrettable situation. It was decided to establish four sections of activity: eugenic, physical training, food, and clothing and shelter. More than 130,000 cases of acute infectious diseases occur every year. Mental disease has also increased of late. The number of insane at present is 83,366, which means that there are more than twelve cases of insanity per 10,000 of population. The number of conscripts who pass the physical examination is decreasing every year, and the military authorities are afraid that half of the youth will be unable to pass the examination next year; in ten years this would bring about an alarming situation.—*New York State J. Med.*, March '37.

11. Wilson, Phillip D.: Conclusions Regarding the Treatment of Slipping of the Upper Femoral Epiphysis, *Surg. Clin. of N. A.*, New York, June 1936, Pages 733-752.

## DIAGNOSIS AND TREATMENT OF PAIN ABOUT THE FACE AND HEAD

COMPRISING THE MAJOR TYPES OF  
NEURALGIA\*

By  
WINCHELL McK. CRAIG, M. D.,  
Rochester, Minnesota

The complaint of pain about the face and head is encountered so frequently that a consideration of the underlying cause, differential diagnosis, and treatment is always of interest and importance. Many types of lesions, involving not only the cranial nerves but also the structures of the mouth and nasopharynx, and the superficial structures, may be the underlying causes of pain. All pain in this region usually is referred to as "neuralgia," and for that reason it is important to distinguish between true neuralgia and atypical neuralgia of the face, head, and neck. From the standpoint of diagnosis and treatment, it is imperative to remember that there are only three true neuralgias. The first and most common is trigeminal neuralgia, which is characterized by pain in one or more divisions of the fifth cranial, or trigeminal, nerve. The second is glossopharyngeal neuralgia that involves the ninth cranial nerve, and the third is occipital neuralgia that involves the occipital nerves. Many pains simulate these types of neuralgia, but the characteristic history of onset and description of attacks, as well as the characteristic course of the disease, are lacking. These atypical pains do not respond to the treatment given for typical neuralgia, and therefore conservative, palliative means of treatment should be instituted. The question of individual resistance to pain is always of importance in the analysis and treatment of such pain, because patients whose threshold to pain is low not only do not respond satisfactorily to palliative treatment, but sometimes they are unsatisfactory patients to whom to apply the radical procedures used for relief of the major neuralgias.

In trigeminal neuralgia the history is typical; usually the patient has a sharp,

shooting pain that extends along the ramifications of one or more branches of the fifth nerve. There usually is a trigger zone or area which, on being irritated, causes onset of the pain. The treatment consists of either injection of alcohol into the peripheral branches, or the radical operation, and although results of the former are not always permanent, in our experience at The Mayo Clinic, it has seemed advisable for three reasons, the first of which is that injections of alcohol aid in the differential diagnosis and tend to confirm the diagnosis of trigeminal neuralgia. Although it is true that injections give unsuccessful results in a small number of cases, if the pain is not relieved the possibility of it being true trigeminal neuralgia can almost always be ruled out. A second reason why the injection of alcohol should be considered carefully for the palliative treatment of trigeminal neuralgia is education of the patient. Deep injections of alcohol into the peripheral branches of the nerves usually are followed by relief of pain and numbness of the face. This anesthesia is sometimes mild and transient in duration, and it acquaints the patient with the numbness which always follows section of the nerve. The third reason why injections of alcohol are advisable is the temporary relief of pain accorded the dehydrated and emaciated patient before the radical operation is attempted, thus allowing improvement in his general condition. The duration of relief following injections of alcohol extends from nine months to many years. These injections can be repeated several times before operation becomes necessary. The ultimate and final treatment of trigeminal neuralgia is section of the posterior root of the fifth nerve. Peripheral avulsions have been done, but results following these, too, are as temporary as are those secured by the injection of alcohol.

There are two methods of approaching surgically the fifth or trigeminal nerve: the transtemporal and the suboccipital methods. The first type of operation is carried out through a small opening in the skull, anterior to the ear, in the temporal region. The middle meningeal artery is ligated and the dura is reflected from over the sensory root posterior to the gasserian ganglion. With the sensory root exposed, total or subtotal section can be done, pre-

\*Read before a meeting of the Gulf Coast Clinical Society, Mobile, October 16-17, 1936.

\*From the Section on Neurologic Surgery, The Mayo Clinic.



serving the motor root which descends behind the sensory root and supplies the muscles of mastication.

The second type of operation is carried out through a unilateral, suboccipital opening in the skull and the nerve is exposed as it leaves the pons and before it crosses the petrous bone to enter the middle fossa.

The first type of operation allows of examination of the gasserian ganglion and contiguous structures for possible lesions which may be causing the pain, and the second exposes the pons and associated structures of the posterior fossa. My neurosurgical colleagues and I prefer the transtemporal type of operation and have encountered few postoperative complications; in our series there has been a mortality of less than 0.5 per cent in spite of the fact that the majority of the patients have been in the later decades of life.

Trigeminal neuralgia is the most important of the neuralgias and is associated with probably the most excruciating type of pain. A differential diagnosis is necessary before treatment is begun, because in the absence of true trigeminal neuralgia neither injections of alcohol nor resection of the posterior root will give relief. For that reason, it is necessary to distinguish between the pains in the fifth nerve which are attributable to involvement of the nerve and those which are attributable to involvement of its central connections.

In making a differential diagnosis it is important to keep in mind that pain in the region of distribution of the fifth nerve may be caused by peripheral lesions, by lesions that involve the nerve trunks, by lesions of the posterior root ganglia, by lesions of the brain stem, by lesions in the optic thalamus, by lesions in higher associative brain centers, and by migraine. Peripheral neuritis may follow trauma in which there is formation of scar tissue, pressure by fragments of bone or inflammation of nerve endings caused by local septic processes. The lesions that involve the nerve trunks may be caused by trauma to the bony canals around the nerve trunk, with subsequent formation of scar, or a tumor may press on the nerve; the latter may occur when a malignant condition is present in the nasopharyngeal region. Local septic processes may involve the nerve trunks and produce interstitial or parenchymatous neu-

ritis, and lesions of the posterior root ganglia, such as ganglionitis, posterior poliomyelitis or herpes trigeminus, may produce pain in the distribution of the fifth nerve. In addition, tumors arising from the ganglionic envelopes or other contiguous tissue may compress the ganglion. Local meningitis, caused by syphilis, nonspecific epidemic encephalitis or tabes dorsalis may produce pain in this region. Numerous lesions about the brain stem, such as a tumor in the pons, thrombosis, hemorrhage of the posterior or inferior cerebral artery, multiple sclerosis, and arteriosclerotic softening may be associated with pain in this region. The possibility of the presence of lesions in the optic thalamus and higher associative brain centers, as well as of migraine, emphasizes the necessity for very careful general, as well as neurologic, examination before a definite diagnosis of one of the major neuralgias is made.

Glossopharyngeal neuralgia is the second important primary type of neuralgia. It compares clinically with trigeminal neuralgia, but in glossopharyngeal neuralgia the pain follows the distribution of the ninth, or glossopharyngeal, nerve. The pain is sharp, shooting, and paroxysmal. Instead of spreading over the face the pain extends from the tonsillar region into the ear. It usually is brought on by drinking either cold or hot liquids; the trigger area is in the tonsillar region. In this type of neuralgia injection of alcohol is of little avail, on account of the difficulty of injection into the intracranial portion of the nerve. Avulsions of the peripheral nerves have been tried, with only temporary relief of pain, and, for that reason, intracranial section of the ninth or glossopharyngeal nerve is the only treatment which will give permanent relief. The application of cocaine to the mucous membrane of the nasopharynx, in the course of a paroxysm, followed by relief of this pain, distinguishes this neuralgia from the atypical forms, and this procedure should be carried out as a diagnostic measure in all cases. In order to approach the ninth nerve intracranially, it is necessary to perform unilateral, suboccipital craniotomy and to elevate the cerebellum on the same side. The ninth, tenth, and eleventh nerves make their exits from the skull through the same foramen, and the ninth nerve is easily identified and com-

pletely sectioned without producing any change in the tenth or eleventh nerves.

Another of the major types of neuralgia is the occipital form, which follows the distribution of the occipital nerves; these arise from the first, second, and third cervical nerves. In occipital neuralgia injection of procaine is of aid in diagnosis, as the nerves ascend beneath the scalp; if the pain is relieved by the procaine, excision of the nerve may be indicated, or it may be necessary to section the posterior roots of the cervical spinal nerves.

Many localized regions of obscure tenderness and pain over the scalp may be caused either by various lesions or may be phases of migraine. In one case, in which pain over the left temporal region had been present for three years, and in which the pain was worse when the patient coughed or sneezed, the cause was found to be impingement of bone on the anterior branch of the middle meningeal artery. The pain was completely relieved by turning a small flap of bone and dividing the middle meningeal artery. Headaches and pains behind the eyes and over the face and neck may be physiologic migraine, and may respond to general measures rather than to injection or to cutting of the nerves or vessels.

Migraine is a relatively common disease characterized by (1) hereditary tendency, (2) lifelong course, (3) periodicity of attacks, and (4) no manifest alteration of structure. Although the pain usually is diffuse over the cranium, it may be felt in any part of the distribution of the fifth nerve, associated with diffuse headache, or it may occur in one small area as an isolated phenomenon. When the pain is felt in one region of distribution of the fifth nerve, the disease nevertheless follows the characteristic course of migraine irrespective of the situation of the pain (neuralgic migraine). As a result of exhaustion, stress and strain, the periodic pain may become constant and continue so. The change from a periodic headache to a localized pain in the jaws or face is not uncommon in the fourth and fifth decades of life. Patients who have migraine are poor subjects for operation. Section of the posterior root of the gasserian ganglion in these cases not only fails to relieve the patient, but adds a multitude of unpleasant sensations as well as marked nervous exhaustion.

Several operations have been advised and carried out for relief of migraine, especially for the hemicrania of migraine in which the headaches are confined to one-half of the head. Ligation of the middle meningeal artery intracranially has been advised and carried out, with only a minimal amount of relief. Cervicothoracic sympathetic ganglionectomy in selected cases seems to be the most effective type of treatment. Fortunately, it is possible to select the cases for operation by injection of the stellate and first thoracic sympathetic ganglia. If these ganglia are injected with procaine in the course of a paroxysmal attack, and if the attack is immediately controlled, cervicothoracic sympathetic ganglionectomy will produce permanent relief. Conversely, if a successful injection of procaine does not abolish the pain, cervicothoracic sympathetic ganglionectomy is contraindicated.

There are many other types of pain, among which is postherpetic neuralgia which follows herpes ophthalmicus. The pathologic changes in these cases are uncertain, although they probably are within the nerve nucleus, and the pain will not be relieved by dividing the nerve or by injection. Roentgen therapy has been used with some success, although at times the pain proves very obstinate to any form of treatment.

The patient's threshold to pain is a very important factor when determining the type of treatment applicable in individual cases. In addition, it is necessary to evaluate the general nervous and constitutional make-up of the patient. The physical condition, with regard to recent illnesses, state of exhaustion and state of nutrition, is important because sometimes, by attending to the general condition, the pain is seen to be of medical importance and operation is not indicated.

#### COMMENT

Treatment of pains about the face, head, and neck depends largely on a carefully taken history and careful examination, allowing for differential diagnosis that takes into account the typical forms of neuralgia, namely, trifacial, glossopharyngeal, and occipital neuralgia and the atypical pains which so closely simulate them. There is a definite therapeutic scheme for the typical neuralgias which allows for palliative and



permanent relief, but the same type of treatment for atypical pain not only does not relieve the patient, but sometimes increases his discomfort.

A very carefully made general examination, as well as a neurologic examination, is necessary to establish the patient's status with regard to threshold of pain, physiologic and emotional stamina, and general condition. Biologically inferior persons, those with an unstable emotional reaction, and exhausted patients make very poor surgical risks from the standpoint of permanent relief of pain. The true major neuralgias can be relieved, and the patients can be restored to an active, happy place in the social and economic world.

rose to 16 per cent were encountered in the literature. We have been unable to find, however, any eosinophile count following arsphenamine poisoning approximating those reported in this paper. The four cases described have been lifted from a series of arsphenamine poisonings occurring among Negro women,<sup>3</sup> the clinical histories of which have already been related by the authors.

#### CASE REPORTS

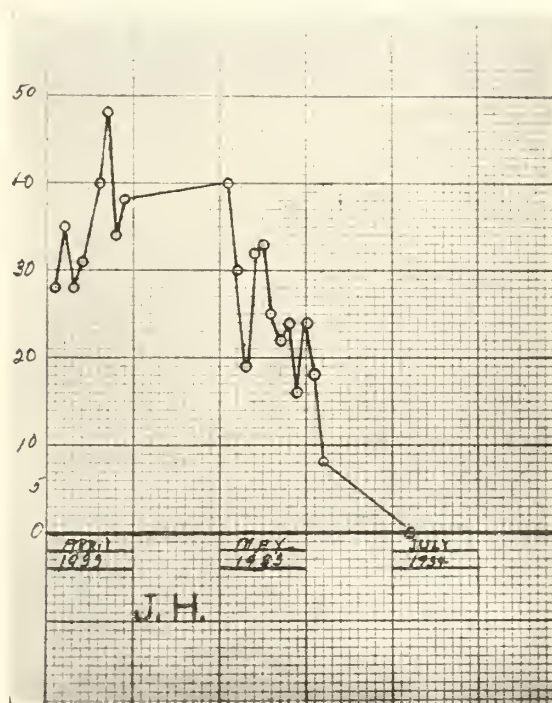
*Case 1.*—J. H., colored female, aged twenty-six years, was admitted to the hospital April 18, 1933, and discharged May 17, 1933. Six weeks before admission she began to take weekly doses of neoarsphenamine. The fourth dose caused a mild skin reaction, and the fifth dose given a week before admission brought on all the evidences of an acute arsphenamine reaction. Leukocyte count on admission was 14,000 and on discharge 13,000.

### NOTES ON HIGH EOSINOPHILE COUNTS IN ARSPHENAMINE POISONING\*

By  
GROESBECK WALSH, M. D.,  
And  
COURTNEY S. STICKLEY, M. D.,  
Fairfield, Alabama

In his discussion of eosinophilia, Emerson<sup>1</sup> refers to the eosinophile as the most capricious cell of the blood. He recalls a case of asthma reported by Billings in which the percentage of eosinophils rose to 54, two cases of trichinosis, one reported by Brown in which the eosinophils were as high as 68 per cent, and a case of Gwynn's in which the eosinophils measured 65.9 per cent.

Many conditions other than infections with intestinal parasites and manifestations of the allergic state induce high eosinophile counts. Herbert French<sup>2</sup> is authority for the statement that eosinophile percentages have risen to over 40 per cent of the white cells following the use of emetine hydrochloride. That it occurs following arsphenamine poisoning is well known, although the fact has received very little attention. Several reports of arsphenamine poisoning in which the eosinophile count



This graph and those that follow show percentages of eosinophils present.

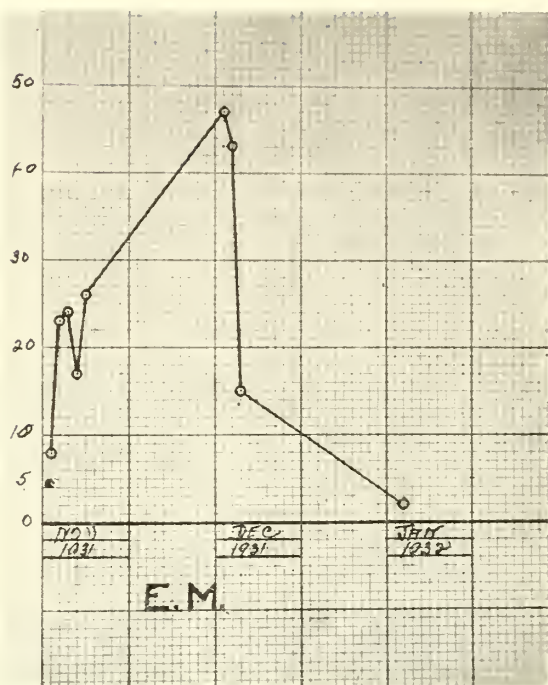
*Case 2.*—E. M., colored female, aged twenty-five years, was admitted to the hospital November 9, 1931 and discharged January 9, 1932. She received 0.6 grams of neoarsphenamine October 28, 1931, and a second injection November 4, 1931 five days before admission. Leukocyte count on admission was 41,000 and on discharge 6,000.

\*From the Medical Section of the Employees' Hospital, Fairfield.

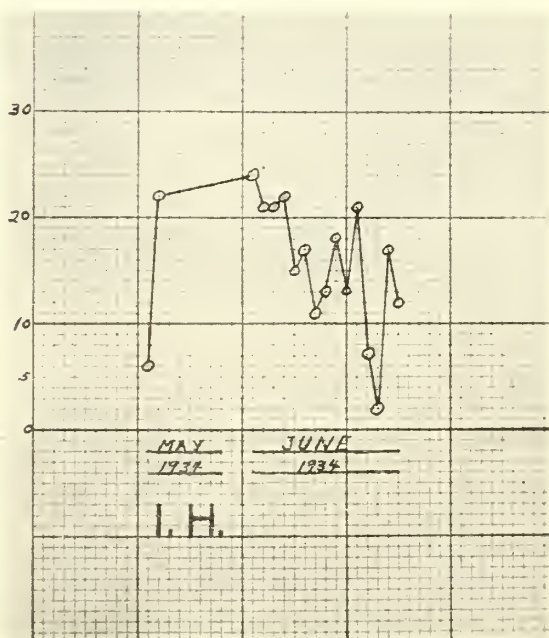
1. Emerson, C. P.: *Clinical Diagnosis*, J. B. Lippincott & Company, 1906.

2. French, Herbert: *Index of Differential Diagnosis*. Wm. Wood & Company, September 1928.

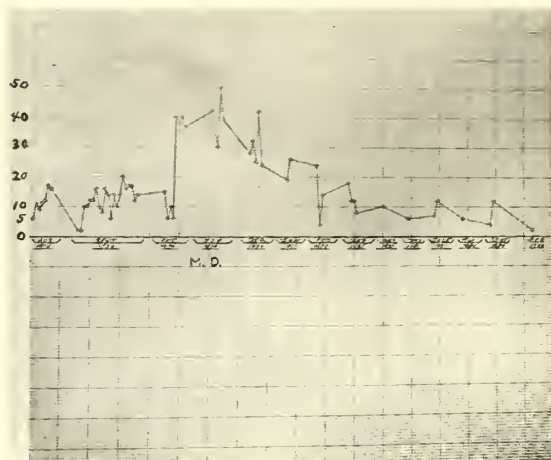
3. Walsh, Groesbeck and Stickley, Courtney S.: *Arsphenamine Poisoning Occurring Among Negro Women*, *Am. J. Syph. & Neurol.* 19: 323 (July) 1935.



Case 3.—I. H., colored female, aged forty years, was admitted to the hospital May 28, 1934 and discharged June 15, 1934. Between the period of April 4, 1934 and May 7, 1934 she was given six doses of neoarsphenamine. Leukocyte count on admission was 15,000 and at the height of the eosinophilia it was 6,000.



Case 4.—M. D., colored female, aged thirty-eight years, was admitted to the hospital August 24, 1934, and discharged September 22, 1934. She had been given intravenous injections of neoarsphenamine at weekly intervals for eight weeks. The last dose was given four weeks before admission to the hospital, and the eruption appeared ten days before admission to the hospital. Leukocyte count remained slightly elevated throughout her stay.



## SKELETAL TRACTION\*

By  
F. L. CHENAULT, M. D.  
Decatur, Alabama

Modern industry and traffic produce so many fractures with so many variations and complications, and so many associated injuries to joints, nerves, blood vessels, muscles, tendons and other soft parts, that every known and some yet unknown appliances are needed to maintain reduction once it is properly attained. In attempting to speak for more frequent use of skeletal traction, we are not unmindful of the cardinal principles in treatment of all fractures; namely, that first aid and subsequent treatment should not inflict additional injury; that unnecessary manipulation should be avoided; that we should "splint them where they lie" and transport them carefully; treat shock and let fractures be reduced and immobilized at the earliest possible moment; and to seek to elicit crepitus and abnormal mobility is to produce additional injury which should be unlawful for bone surgeons.

Injuries to muscles, blood vessels, nerves and other tissues should be discerned and respected. X-ray pictures in two planes

\*Read at a meeting of the Northwestern Division of the Association, Florence, October 15, 1936.



should be had and the fluoroscope used in reduction. Painful examination or reduction should be had under anesthesia, general or local as indicated. All the existing pathology in bones and soft parts, whether traumatic or pre-existing, should be recognized and properly recorded. There is no such thing as a fracture with injury to the bone alone. The treatment of each fracture is an individual problem. Shock and trauma should receive appropriate treatment. Displacement should be completely reduced as soon as possible and this reduction maintained by the apparatus appropriate to the particular fracture, having due regard to the injuries to the skin and other soft parts.

We should strive to forget what some old antediluvian barber said about anatomic reduction not being essential to functional success. It is true the Lord and undertaker cover many of our errors but God forbid that we should do evil that grace may abound. X-ray and fluoroscopic examinations should be repeated early and subsequently as indicated and if further efforts at reduction are found to be necessary they should be made at once. Study anatomic or mechanical, together with functional or physiologic, questions in each case. Blood supply largely determines rapidity of repair. Atrophy of disuse and pressure retard recovery. While immobilization is essential, excessive motion greatly increases the amount of callus, yet callus may be greatly increased without causing non-union. The amount of trauma to bone and periosteum also influences the amount of callus. Circulation to parts can be improved, tone maintained and healing hastened by avoiding improper and injurious apparatus, by institution of active and passive motion or physiotherapy and judicious application of diathermy as soon as no danger of displacement of the fragments or other injuries.

Traction is necessary to maintain reduction of long bones. It may be secured by adhesive or moleskin, muslin or glue applied to the skin. This is adequate in some cases. A decision of what apparatus to use should include a consideration of how efficient the apparatus is, how long it will be needed, and how well it lends itself to suitable massage, active and passive motion and diathermy to encourage early repair. Remember always that trauma and all other

pathology, whether congenital or acquired, influence healing of bone and the well being of the patient and that local atrophy from pressure and disuse are not desirable. Let it be emphasized that skill in application is far more important than inherent or intrinsic merits of any particular apparatus. It is the man behind the apparatus more than the apparatus that determines its success or failure. Thomas and Hodgen's splints are almost indispensable in the armamentarium of the surgeon treating even occasional fractures of the long bones.

Plaster of paris in competent hands lends itself well to a greater variety of fractures than any other one material. Molded plaster is excellent following skeletal traction. The prime indication for skeletal traction is fracture of a long bone with tendency to displacement. Various forms of skeletal traction have been devised. We regard the small stainless steel Kirschner wire the best. Drills, guides and clamps are expensive but are not used up in the using, so to speak. Skeletal traction is not only more direct, better controlled and more efficient but also more comfortable to the patient. The operation should be under scrupulous surgical technic. The skin should be pulled up, a small puncture or nick made, then with suitable drill and guide the small stainless steel wire passed through the soft parts and bone to the skin on the opposite side of the limb, which should be then pulled up and the wire passed through. Aseptic dressings are then applied which need not be frequently disturbed and the clevis firmly attached to the taut wire.

Extension is had by means of weights and pulleys or a spring scale, under daily supervision and control, and the dressing of the wound where the wire passes through the skin should not often be disturbed. With skeletal traction too much extension may be had and fragments of bone separated. This can be controlled by fluoroscopic examination and x-ray pictures, which can be made in bed with a portable shock-proof x-ray machine, and adjustment of weights or spring scale applied over the pulleys to the clevis attached to the Kirschner wire. Skeletal traction should remain until union is fairly stiff, usually three to five weeks. Injury may result if too long continued. Skeletal traction merits wider use than is being accorded it at present.

## HAY-FEVER IN ALABAMA\*

## 1. THE FLORA OF ALABAMA

By

CLARENCE K. WEIL, M. D.  
Montgomery, Alabama

In almost every section of the country, studies have been made on the flora responsible for the production of hay-fever. Such studies are fundamental if one would make any serious attempt to ferret out the cause of seasonal attacks. The only study of this nature which deals with the flora of Alabama appeared in The Journal of the Medical Association of the State of Alabama (1: 15-19, July 1931). The article contained a partial list of the wind-pollinated plants found in this state and a table showing their periods of pollination. Further study over a period of four and a half years has brought to the author's attention other plants not previously recognized. These plants are listed here (Table 1) for future reference for those doing investigative work in the field of allergy. The table of pollination published in 1931 has been revised and divided so that Table 2 includes only those plants which in the author's cases caused hay-fever. Table 3 includes other species which may cause hay-fever but which in the author's experience have not yet done so.

TABLE 1

## TREES:

A. *Pinaceae*—Pine family:

1. *Pinus*—Nine species scattered over the central and southern part of the state, including,
  - P. echinata*—Short leaf pine
  - P. palustris*—Long leaf pine
 Abundant, pollination profuse, pollen granules large, winged, resinous, insoluble.

2. *Tsuga**T. canadensis*—Hemlock

Rare, confined to mountain area.

3. *Taxodium**T. distichum*—Swamp cypress

Moderately abundant, fairly profuse pollination, dense extine.

4. *Chamaecyparis**C. thyoides*—White cedar

Pine-barren streams of South Alabama. Cultivated white cedar.

5. *Cedrus**C. deodera*—Deodera cedar

Very rare, fall blooming.

6. *Juniperus**J. virginiana*—Red cedar

Abundant in the northern part of the state. Pollination scant.

B. *Juglandaceae*—Walnut family:1. *Juglans**J. nigra*—Black walnut*J. cinerea*—Butternut2. *Hicoria*—Nine species*H. pecan*—Pecan*H. ovata*—Scaly bark*H. alba*—Hickory

Very abundant especially hickory and pecan. Profuse pollination.

C. *Salicaceae*—Willow family:1. *Populus*—Poplar and cottonwood*P. deltoides*—Cottonwood*P. alba*—Silver leaf poplar2. *Salix*—Willow—Four species*S. nigra*—Common willow

Abundant along streams and ditches. Largely insect pollinated.

D. *Corylaceae*—Hazel nut family:1. *Carpinus**C. caroliniana*—Ironwood or hornbeam

Rare, profuse pollination.

2. *Ostrya**O. virginiana*—Hop-hornbeam

Fairly rare.

3. *Corylus**C. rostrata*—Beaked hazelnut

Scant pollination.

E. *Betulaceae*—Birch family:1. *Betula*—Birch*B. nigra*—Common birch

Rare. Fairly abundant pollination.

2. *Alnus*—Alder*A. rugosa*—Alder

Abundant along streams. Profuse pollination.

F. *Fagaceae*—Oak family:1. *Fagus**F. americana*—Beech

Rare.

2. *Castanea*—Chestnut*C. dentata*—American chestnut*C. pumila*—Chinquapin

Insect pollinated.

3. *Quercus*—Oaks—About 30 species*Q. alba*, etc.

Abundant. Profuse pollination.

G. *Ulmaceae*—Elm:1. *Ulmus*—Elm*U. alata*—Winged elm

Abundant shade tree. Pollination scant.

*U. americana*—American elm*U. serotina*

Very rare. Fall pollination.

2. *Planera*—Plane tree*P. aquatica*—water elm

Rare.

3. *Celtis*—3 species*C. occidentalis*—Hackberry

Abundant shade tree. Scant pollination.

\*Read in Allergy Clinic and Round Table, meeting conjointly with Southern Medical Association, Twenty-ninth Annual Meeting, St. Louis, Missouri, November 19-22, 1935.

\*Part 2 will appear in an early issue.



H. *Moraceae*—Mulberry:

1. *Toxylon*  
T. pomiferum—Osage orange  
Rare. Commonly known in Alabama as mock orange.
2. *Broussonetia*  
B. papyrifera—Paper mulberry ("Smoke tree")  
Rare. Abundant pollination.
3. *Morus*  
M. rubra—Red mulberry  
M. alba—White mulberry  
Abundant. Profuse pollination.

I. *Hamamelidaceae*—Witch-hazel family:

1. *Liquidambar*—Gum  
L. styraciflua—Sweet gum  
Not abundant.
2. *Hamamelis*—Witch-hazel  
H. virginiana—Witch-hazel  
Rare.

J. *Platanaceae*—Plane tree family:

1. *Platanus*  
P. occidentalis—Sycamore  
Abundant. Scant pollination.

K. *Rutaceae*—Rue family:

1. *Zanthoxylum*  
Z. clava-herculis—Southern prickly ash  
Rare.

L. *Simarubaceae*

1. *Ailanthus*  
A. glandulosa—Tree of heaven  
Abundant. Insect pollinated.

M. *Accraceae*—Maple family—6 species

1. *Acer rubrum*, etc.  
Comparatively rare. Primarily insect pollinated.

N. *Oleaceae*—Olive family:

1. *Fraxinus*—Ashes  
F. americana—White ash  
Comparatively rare. Abundant pollination.

O. *Mimosaceae*—Mimosa family:

1. *Albizia julibrissin*—Mimosa  
Abundant in parks. Insect pollinated.

Note. The list does not include the fruit-bearing trees nor the flowering trees such as magnolia, tulip poplar, sarsaparilla, sassafras, linden, dogwood, chinaberry, locust and horse chestnut. The flowering shrubs have also been omitted as they seem to be of no importance in the production of hay-fever.

GRAMINIAE (GRASS FAMILY):

A. *Maydeae*:

1. *Tripsicum dactyloides*—Spiked gamma grass (July-August)
2. *Zea Mays*—Corn

B. *Andropogonaceae*:

1. *Erianthus* spp.—Blume grasses (September-October)
2. *Andropogon* spp.—Broom sages and blue stems (September-October)

3. *Holcus* spp.—Johnson grass, Sudan grass, sorghum

C. *Panicaceae*:

1. *Chaetochloa* spp.—Fox tails (July-October)
2. *Syntherisma* spp.—Crab grasses
3. *Paspalum* spp.—Water grass—20 species
4. *Axonopus compressus*—Carpet grass
5. *Panicum* spp.—Panic grasses—70 species

D. *Oryzaceae*:

1. *Homalocenchrus* spp.—Cut grass (June-September)

E. *Phalaridaceae*:

1. *Phalaris canariensis*—Canary grass

F. *Agrostideae*:

1. *Aristida* spp.—Triple-awned grass (Aug.-Sept.)
2. *Stipa avenaceae*—Black oat grass (Apr.-May)
3. *Sporobolus indicus*—Smut grass (July-Sept.)
4. *Agrostis* spp.—Red top and bent grasses

G. *Aveneae*:

1. *Avna sativa*—Oats

H. *Chloridiaceae*:

1. *Capriola dactylon*—Bermuda grass (May-Sept.)
2. *Eleusine indica*—Crowfoot grass (June-Sept.)

I. *Festuceae*:

1. *Tridens flava*—Fall red top
2. *Eragrostis* spp.—Love grasses
3. *Poa* spp.—Blue grass (Early Spring)
4. *Festuca* spp.—Fescue grass (Apr.-June)
5. *Bromus* spp.—Fescue grass and cheat grass (spring)

J. *Hordeae*:

1. *Hordeum* spp.—Barley
2. *Triticum vulgare*—Wheat
3. *Lolium* spp.—Rye grasses (Apr.-June)
4. *Secale cereale*—Rye

Note. No attempt has been made to list all of the grasses, but rather the most important families and genera.

WEEDS:

A. *Ambrosiaceae*—Ragweed family:

1. *Iva*  
I. ciliata—Annual marsh elder  
Mobile County and adventitious with Western grain. Known to be present in Montgomery County.
2. *Ambrosia*  
A. trifida—Giant ragweed  
A. artemisiifolia—Hogweed, common ragweed.  
A. psilostachya—Western ragweed, found in Autauga County.  
Very abundant, very profuse pollination, small granules.
3. *Xanthium*  
X. canadensis—Cocklebur  
X. strumarium—Burweed  
X. spinosum  
Very abundant. Scant, sticky pollen.





## FRACTURES OF THE LOWER END OF THE TIBIA AND FIBULA\*

By  
C. L. GUICE, M. D.  
Gadsden, Alabama

For several months we have been treating fractures of the lower end of the tibia and fibula by the use of an unpadded plaster of paris cast and walking iron, after the method of Prof. Bohler of Vienna, and have been highly pleased with the results.

The fracture is reduced under local anesthesia by traction, pressure and manipulation. For some years we have used local anesthesia in a large number of fractures with a good deal of satisfaction. The skin over the fracture is cleansed and painted with some standard antiseptic. A 10 cc. syringe is filled with 2% novocaine solution and the needle introduced into the hematoma about the fracture. When we are certain that the hematoma has been entered, by being able to draw blood into the syringe, 20 to 40 cc. of 2% novocaine solution are injected. In from five to eight minutes a very satisfactory anesthesia is obtained, usually.

Having obtained anesthesia, the operator sits on a stool holding the foot of the injured leg in his lap. The patient may sit up on the table or lie with the injured leg over the side, whichever is preferred. Pressure is then applied to the ankle until most of the swelling has disappeared, and the malleoli can be felt. Then, by traction and manipulation, reduction of the fracture, and any dislocation that may be present, is made. The reduction is always confirmed by x-ray. A fairly thick plaster of paris splint is then prepared by an assistant. This is placed on the back of the leg, extending from just below the knee down over the heel and along the plantar surface of the foot to just beyond the ends of the toes. This splint has no padding and is molded to the leg and foot and held in place with a muslin bandage. Circular plaster bandages are then applied from the base of the toes upward to a point just below the knee. When the plaster has set, the walking iron is applied. This consists of a strip of iron

$\frac{3}{4}$ ths of an inch wide and  $\frac{1}{8}$ th of an inch thick, bent in the shape of a "U." The legs of the "U" are placed on each side of the patient's leg, outside the cast, the base or lower part coming across the bottom of the foot. (Later, the patient is to bear weight on this part.) The lower part of the iron should extend down to a level with the heel of the shoe on the uninjured foot. The walking iron is then applied and made fast to the leg by applying other plaster of paris bandages over it.

After two to four days the patient is allowed to walk with or without the aid of a stick. He is allowed to be on his feet as much as he likes and to return to light work if he desires.

We realize that the application of a circular plaster cast to a limb in which the bones have been fractured, with trauma to the soft parts, is contrary to the usual teaching. The cast, however, is unpadded and conforms exactly to the limb on which it is applied, and is not applied until the greater part of the swelling has been massaged out. The plaster also extends from the base of the toes upward, so there is very little opportunity for swelling below the cast.

In some cases swelling may occur under the cast and interfere with the circulation. For that reason the patient must be kept under close observation for several days following the application of the cast. If discoloration or swelling of the toes occurs, or if pain is severe enough to require morphine, then the plaster should be cut immediately. Though it has not been necessary in any of our cases to cut the cast, Prof. Bohler says it may be in some instances. In such cases, however, either the fracture has not been properly reduced or the cast has been incorrectly applied.

---

**Trends in Nutrition**—Work and studies in human nutrition are making better headway. Knowledge in plant and animal nutrition has advanced and has received interest and support from diverse agencies, chiefly due to economic reasons of course. The facts and knowledge gained were slow in being applied to human nutrition. The subject is of tremendous importance to human welfare.—*Fitts, J. M. A. Georgia, Feb. '37.*

\*From the Guice-Morgan Clinic, Gadsden.

\*Read at the fifteenth annual meeting of the Alabama State Association of Railroad Surgeons, Birmingham, July 10 1936.

# THE JOURNAL

## OF THE

### Medical Association of the State of Alabama

---

#### Editor-in-Chief

FRED W. WILKERSON..... Montgomery

#### Associate Editors

M. Y. DABNEY..... Birmingham

W. D. PARTLOW..... Tuscaloosa

J. N. BAKER..... Montgomery

DOUGLAS L. CANNON..... Montgomery

---

Please send in promptly notice of change of address, giving both old and new; always state whether the change is temporary or permanent.

---

#### Office of Publication

519 Dexter Avenue..... Montgomery, Ala.

---

Subscription Price..... \$3.00 Per Year

---

March 1937

---

#### HAVE YOU MADE A RESERVATION?

Attention was called in the February Journal to the importance of an early reservation for the annual session, Birmingham, April 20-22. Members of the Association experiencing difficulty in procuring a room should communicate with Dr. Earle Conwell, Chairman of Arrangements, Medical Arts Building.

---

#### MEDICOLEGAL APPLICATIONS OF BLOOD GROUPING

As far back as 1900, Landsteiner began to make observations on the existence of individual differences of human blood. And, in the ensuing decades, such progress has been made that now blood grouping is beginning to be resorted to by the courts. Levine<sup>1</sup> says that "in the past few years much progress has been made in the study of blood groups and individual differences of human and animal blood. It is, therefore, essential for the practicing physician to acquaint himself thoroughly with the more recent advances in this field which have a bearing not only on the practice of medicine, but also with those aspects of the subject dealing with exclusion of paternity and examination of blood stains in criminal

cases . . . An accurate description of the blood groups, and their bearing on outcome of successful transfusion, was given by Landsteiner."

"The scheme of the four blood groups, as is well known, results from the distribution of two agglutinable substances A and B in the cells, and two corresponding agglutinins in the serum."

It is asserted by Muehlberger<sup>2</sup> that "further, it may be stated that the rules of inheritance of these blood grouping characteristics . . . is founded upon such conclusive evidence that its acceptance by the medical profession has been universal. By comparing the blood groups of the child, mother and supposed father, a falsely accused man has about once chance in six of proving that he could not have been the father of the child." Additional refinements of technic may increase the possibility of exoneration to one chance in three or four, according to Muehlberger, and he goes on to remind us that "it must be borne in mind that blood grouping tests can never prove that a man is the father of a child; they *may* prove that he could not be the father in a limited number of instances."

Landsteiner<sup>3</sup> publishes figures showing that in Europe, mostly in Germany, Austria and the Scandinavian countries, individuality tests have been used in 5,584 medicolegal cases, with 443 exclusions of paternity or a percentage of 7.9 and his concluding sentence is "as to the prospects of the forensic application of the blood tests in this country it will, of course, depend on whether the available evidence will satisfy the legal authorities as it has the European courts." And all of the above investigators issue warnings similar to that of Wiener<sup>4</sup> who tells us that "in conclusion, it may be well to emphasize that whereas the technic of the blood grouping tests is simple in principle, the tests should be intrusted in medicolegal cases only to competent workers with wide experience. Otherwise, errors in

---

2. Muehlberger, C. W.: Blood Grouping Tests in the Medicolegal Determination of Non-Paternity. *Illino's M. J.* 69: 154 (Feb.) 1936.

3. Landsteiner, Karl: Forensic Application of Serologic Individuality Tests, *J. A. M. A.* 103: 1041 (Oct. 6) 1934.

4. Wiener, Alexander S.: Blood Groups and Blood Transfusion. Springfield, Ill., and Baltimore. Charles C. Thomas, p. 208.

1. Levine, Philip: Blood Groups, Theory and Medicolegal Application, *J. Lab. & Clin. Med.* 20: 785 (May) 1935.



technic are certain to occur which will serve only to discredit the method, or may bring about grave injustice."

For many years the trend has been toward more scientific methods in court procedures. Fingerprinting upon an enormous scale serves justice daily. Ballistics, chemical analysis, microscopic examination are increasingly brought into use and even such instruments as "lie-detectors" are being experimented with. And blood testing may in time become an accepted and commonplace procedure. Levine states that New York State has recently passed laws empowering the courts to order blood tests in cases of disputed paternity and that a similar bill has been submitted to the Wisconsin legislative bodies. But it is probable that these methods will be adopted slowly by American courts. Certainly they must be improved and refined before they will make very much impression upon an Alabama jury. Despite the really great names back of them, they are at present an easy obstacle for an alert and resourceful counsellor at law.

#### SOCIETIES PARTICIPATE IN OCCUPATIONAL TAX

Schedule 106 of Section 348 of the 1935 Revenue Act reads as follows:

Each person engaged in the practice of medicine, chemistry, bacteriology, roentgenology, or other similar profession, in cities or towns of over five thousand inhabitants shall pay an annual license of twenty-five dollars (\$25.00); in cities or towns of less than five thousand and more than one thousand inhabitants, ten dollars (\$10.00); in all other places whether incorporated or not, five dollars (\$5.00), but no license shall be paid to the county. If such business is conducted as a firm or as a corporation in which more than one person is engaged, each person so engaged shall pay the license as above stated. Provided that the license imposed by this section shall not apply until such person shall have practiced his or her profession as long as two years.

At the 1936-1937 extra session of the Legislature, Dr. R. L. Hill, of Winfield, Representative in the House from Marion County, introduced and sponsored the following amendment to this section of the Revenue Act which is now law:

*Be It Enacted by the Legislature of Alabama:*

Section 1. That Schedule 106 of Section 348 of an Act entitled An Act to provide for the general revenue of the State of Alabama, approved July

10th, 1935, be and it is hereby amended so as to read as follows:

Schedule 106. Each person engaged in the practice of Medicine, Chemistry, Bacteriology, Roentgenology, or other similar profession, shall pay an annual license, in cities or towns of:

|   |         |
|---|---------|
| Over 5,000 inhabitants .....                          | \$25.00 |
| 1,000 to 5,000 .....                                  | 10.00   |
| All other places whether incorporated<br>or not ..... | 5.00    |

but no license shall be paid to the county. If such business is conducted as a firm or as a corporation in which more than one person is engaged, each person so engaged shall pay the license as above stated. Provided that the license imposed by this schedule shall not apply until such person shall have practiced his or her profession as long as two years.

Provided further that after the fiscal year ending September 30th, 1937, two-fifths of the annual license herein levied shall remain in the State Treasury and shall constitute a separate fund to be disbursed by the State Treasurer as follows:

All of such fund arising from licenses paid in each of the separate counties of the State shall be set aside in a separate fund for such county and shall be disbursed by the State Treasurer, on the order of the Board of Censors of the Medical Society of such county if there be such organization in such county.

In substance, this amendment provides that, after the end of the present fiscal year—September 30th, 1937—two-fifths of the revenue derived from the occupational tax levied on physicians will be made available to county societies; the intent being that the funds thus accruing to such local medical societies—which, by law, play an important part in the health activities of their several counties—will be wisely applied by making more readily available to their physicians current medical literature, through the building of small libraries, and in a more rigid enforcement of the medical practice act in the matter of the illegal practitioner. If county medical societies make use of these funds for purposes such as those suggested above, both the people and the profession will participate in the benefits.

#### THE NEW RABIES CONTROL ACT

A queer quirk seizes upon the legislative mind at the bare mention of legislation seeking to safeguard human life from the perils of rabies by striking at the real source—the dog. Then, it seems, solid facts and figures and calm reasoning must give way to a full sway of the emotions. For the

past three sessions of the Legislature the health department has attempted to arouse public interest to the point of bringing about some sort of state-wide legislation for the better control of this preventable menace. At long last, on the final legislative day of the most recent session, February 26th, 1937, there was enacted into law a state-wide statute, which, while not to be viewed as a model of perfection because of certain necessary compromises, should permit of an earnest beginning to be made in the control of rabies in this state. This disease has been steadily on the increase during the past several years, as the following figures proclaim:

| Year | Animal Heads<br>Examined | Number<br>Found<br>Positive | Human<br>Treatments<br>Distributed |
|------|--------------------------|-----------------------------|------------------------------------|
| 1930 | 1,054                    | 443                         | 1,791                              |
| 1931 | 1,202                    | 589                         | 2,679                              |
| 1932 | 1,615                    | 779                         | 3,697                              |
| 1933 | 1,520                    | 693                         | 3,620                              |
| 1934 | 2,353                    | 1,017                       | 5,514                              |
| 1935 | 2,062                    | 977                         | 5,038                              |
| 1936 | 1,758                    | 883                         | 4,036                              |

Since the dog is the chief factor in the spread of rabies, control measures should be instituted against this animal. This proposed act is not designed as a revenue producer. It is merely a regulatory measure. The ultimate aims are: (1) the reduction

of the stray dog population of Alabama; (2) the protection of the remaining dogs in so far as possible by vaccination; (3) prevention of the spread of rabies to other livestock (many valuable animals succumb to this disease each year); (4) of greatest importance, the prevention of spread of rabies to human beings (four persons died from rabies last year).

The act vests general supervisory powers in county boards of health, which boards, with the approval of the State Health Officer and State Veterinarian, shall designate or appoint in each county a rabies inspector whose duty it will be to enforce the provisions of the act, under the direction of the county board of health. The fee fixed for the inoculation of dogs is not to exceed 50c, including the cost of vaccine. Provision is also made for the impounding and handling of unlicensed dogs, for which proper vaccination tags or certificates cannot be produced. From the above it will be seen that county boards of health have been given a rather definite and broad responsibility in an effort to make the act operative and the hope is expressed that these boards will so familiarize themselves with its provisions as to bring to the people of their several counties greater protection from rabies, which this act seeks to throw about them.

## DEPARTMENT OF PUBLIC HEALTH

### BUREAU OF ADMINISTRATION

J. N. Baker, M. D.  
State Health Officer in Charge

### A BILL FOR BETTER BILLS

The subjoined editorial appearing in a recent issue of the "Chicago Daily News" furnishes much food for wholesome thought to all; and especially for the more studious members of the medical profession and for health workers, who, because of their training and the seriousness of their tasks, yearn for the time to come when each and every group, carrying important responsibilities—be they administrators, legislators, social economists or what not—will first study their problems and think them through, before making a diagnosis or attempting to apply a remedy.

Would not a bill of the nature outlined below, if adopted and lived up to in Alabama, be a long forward step toward procuring sounder and saner legislation for our State? The weight of the medical profession thrown solidly behind such an approach could hardly fail to produce beneficent results. The contributions made to our State by the medical profession have been, throughout the years, outstanding in the field of public health. A further contribution in the field of statesmanship seems to be here presented.

### A BILL FOR BETTER BILLS

Senator T. V. Smith contributed only one bill at his first session of the Illinois Legislature two years ago. He deliberately waited until June to introduce it. He had been watching the proceedings for four months with the interested eye of a new man in politics. Then, as he introduced his bill, he



told his colleagues in the Senate the conclusions he had reached:

"We do not work in a deliberative atmosphere; for four months we have too much leisure and for two months too much rush. We come together without a program, save what the Governor would have us do; and we wait around to see whether he can make us do it. When we find, as we expected, that he can't make us do it, it is too late for us to put our heads together and decide what could best be done. So we let the possibility of a well-articulated compromise condescend into the passage of this or that hodgepodge. This is a fault with a remedy in our own hands."

Every man in the chamber recognized the accuracy of that diagnosis. Senator Smith's bill, even at that late hour, passed the Senate. A stubborn Speaker blocked its path in the House. But the bill is to be reintroduced. And the obstructive Speaker of the House has retired.

The bill provides for the creation of a legislative council, to consist of 10 Senators and 10 Representatives chosen from both political parties in approximately the proportion of strength in each house, with the reservation that not more than two-thirds of the members of the council from either house shall be of the same party.

The council would have the duty of formulating recommendations for a legislative program based on the deliberate consideration of the needs of government and the welfare of the State. All available sources of information at the disposal of the State and local governments would be at its command. It would have the right to subpoena witnesses and administer the oath. It would meet at least once every quarter, and report periodically to the Assembly.

Kansas created such a council in 1933. Michigan, Kentucky and Virginia have adopted the idea. The experience of Kansas thus far has justified the new departure. It is encouraging the use of impartial technical information and the thoroughly considered treatment of issues; it is promoting intelligent debate with consequent prompt and orderly action. It is creating the deliberative atmosphere sadly lacking in most State Legislatures and restoring dignity and prestige to assemblies as statesmanship more frequently lifts its head above mere politics.—*Chicago Daily News*.

## BUREAU OF LABORATORIES

James G. McAlpine, Ph. D., Director

### CARRIERS\*

#### VII. THE VALUE OF ROUTINE CARRIER SURVEYS IN FOOD HANDLERS

During the past few years the value of routine carrier surveys in food handlers has received considerable consideration and has caused sharp disagreement among students of the subject. Because of this difference of opinion a committee was appointed by the American Public Health

Association to give critical study to this phase of laboratory and epidemiologic practice and to suggest methods of accepted public health procedures. Much of the material in this article has been taken from the preliminary conclusions of this committee.

In attempting to discuss a question of such magnitude, there are three moot phases which should be carefully considered. First, what section of the population is to be regarded as food handlers; or, in other words, are we to regard everyone who is more or less directly or indirectly concerned with food a food handler? Second, how accurate are our laboratory methods and how fully do they disclose the carrier under routine conditions? Third, how costly are routine carrier examinations, and is the value of the results obtained commensurate with such cost?

As far as the first question is concerned the excerpt from the paper of Drs. McCoy and Chesley,<sup>1</sup> quoted in one of the earlier articles in this series, cannot be amplified as to "just who are to be regarded as food handlers? In addition to the groups made up of cooks, waiters and others in hotels, restaurants and other eating places, one must consider whether to include dispensers of soft drinks, butchers, dairymen, milk handlers and finally retail grocers. Even if all these are included there is still to be considered a very much wider group made up of domestic employees and housewives. And if one agrees that all need attention, there would seem to be a fairly good argument for making a 'clean sweep' and doing carrier examinations on the whole population." In the South, where the Negro servant population is great, this last problem of domestic employees must be especially considered. How far are we to proceed in examining all this immense group, and when the results are obtained, how accurate will they be in attempt to solve the problem?

When reference is made to the second question, much controversy has appeared in the literature. The accuracy of any one laboratory examination is largely dependent upon the specimen which is submitted.

\*The last of a series of seven articles on the subject. The first appeared in the August issue.

1. McCoy, G. W. and Chesley, A. J.: Control of Amebic Dysentery, J. A. M. A. 103: 445-47 (Oct. 13) 1934.

A fecal container which is literally clogged with material—and this so often happens with samples from food handlers—is worse than useless. The authenticity of specimens is many times in doubt. It is undoubtedly true that feces from dogs, cows and other domestic animals have been frequently examined as coming from this group. These factors complicate the procedure, and throw a load on the laboratory which it can ill afford to bear.

Furthermore, the limitations of a single laboratory examination should always be borne in mind. With ordinary routine specimens it should be considered that one sample is inadequate. Typhoid carriers, especially, are intermittent. At present, with routine methods, the consensus of opinion is that no one knows the periodicity of such individuals and for that reason a single report is of little significance—if it be negative.

The importance of a clinical examination and a case history is obvious. Quoting from the committee appointed by the American Public Health Association:<sup>2</sup> "Laboratory examinations and tests are obviously for the detection of carriers and mild cases or for the confirmation of clinical findings . . . The value of routine laboratory examinations have been questioned, however."

Continuing from the same report:<sup>2</sup> "The index to the typhoid carrier is the typhoid case, and a careful follow-up of convalescents and contacts would concentrate effort at the source of danger and eliminate the necessity of examining all food handlers for possible carriers." This is most important and emphasizes the value of the disease history of the individual. May it again be said that the laboratory is an adjunct; it makes no attempt to diagnose, but merely supplies one link in the chain of evidence for a final diagnosis. On the other hand a history to be useful must be taken carefully and with special consideration to the mentality of the subject.

In most cases the specimens which are submitted are those concerning enteric diseases. In a state such as Alabama, where

large amounts of typhoid vaccine have been administered over a period of some years, the value of the Widal test is most problematical. Furthermore, carriers sometimes do not have the demonstrable agglutinins in their bloods. The committee of the American Public Health Association does not recommend the routine examination of specimens from food handlers, except from raw milk handlers. And even here, they state "routine examinations of raw milk handlers at regular intervals do not render the supply of milk safe." In septic sore throat, until much more is known about the hemolytic streptococci, there is little practical value in the examination of the throat swab. Diphtheria, as far as carriers are concerned, need not be considered. Tuberculosis, because of its complexity, must receive further study as far as the laboratory end is involved. Amebic dysentery has many unsolved problems; but, as yet, the routine examination of food handlers for this disease has not been recommended. Venereal diseases, except from an esthetic aspect, are not a matter of great importance. Therefore, what logical reasons can be advanced for a wholesale examination of food handlers at yearly intervals, if laboratory results alone are to be relied upon? Even with a careful study of the past history and clinical examination, none of these diseases can be ruled out *between examinations*.

When the cost of routine examination of food handlers is analyzed a detail is injected which concerns every well-rounded public health program. It is extremely difficult to estimate a cost per specimen; but probably the most extensive study on this phase of the subject has been made in Connecticut. There the state requires a periodic laboratory examination of food handler specimens. In 1934 West, Borman and Mickle<sup>3</sup> reported as follows: "Statistics on 91,257 laboratory examinations of milk handler specimens are subjected to an analysis showing estimates of the annual costs based on a unit cost per examination varying slightly from year to year. Significant figures brought forth are: Total cost of the 91,257 examinations in 77 months \$48,048;

2. Young, M. C., Mac Nabb, A. L., Gilbert, R., Koser, S. A., Ravenel, M. P., and Mickle, F. L.: Advisability of Routine Laboratory Examination of Food Handlers. Supp. A. J. P. H. A. 26: 98-100 (March) 1936.

3. West, D. E., Borman, E. K., and Mickle, F. L.: The Detection of Carriers Among Food Handlers in Connecticut, A. J. P. H. A. 24: 493-504 (May) 1934.



average cost of detecting each of the carriers found \$677; per capita (whole state population)\* cost for 1932 less than 2/3 cents; cost per consumer per annum less than 2 cents in 1933; cost per 1,000 quarts of milk (all grades), less than 7 cents in 1933. The cost per carrier per annum was found to vary from year to year, from a minimum of \$387 to a maximum of \$3,848." Later, in another report, the same authors, Borman, West and Mickle,<sup>4</sup> revised, somewhat, their original estimates: "A revised estimate of the cost of the laboratory program in Connecticut is based on actual costs in 1933. The total cost of 24,487 laboratory examinations was \$7,966, making the average cost per examination about 32½ cents." However, in referring to milk handlers—and food handlers, in general, should be considered here—they state: "Periodic physical examination of milk handlers supplemented by certain routine laboratory tests are desirable for raw milk handlers and employees of pasteurization plants."

Furthermore, to discuss the latter phase of a program concerning carriers—and especially of enteric diseases—the following excerpt from an article by Gilbert and Coleman<sup>5</sup> is cited: "In order to avoid the fruitless expenditure of time and materials in the examination of large numbers of specimens that have been collected without discrimination from various groups of individuals, the relative futility and excessive cost of such work should be explained to members of county medical societies and health officials. The same amount of money would yield greater returns if expended in the pasteurization of products wherever possible, the improvement of sanitary facilities, the provision of training in personal hygiene, the removal from work and the treatment of food handlers who are obviously ill, the careful study of epidemiological factors, and the examination of series of specimens from individuals

whose history or clinical manifestations warrant it."

In other words the routine examination of food handlers should be predicated, in all instances, upon a painstaking history taking and careful clinical examination. The indiscriminate collection of specimens, many of which have no authenticity, and the absolute reliance on the laboratory reports—if negative—give a sense of false security, absolutely unwarranted. In raw milk handlers an interrogation and examination are imperative, and unless these precede the submission of specimens, the laboratory time and materials employed are for the most part wasted. If the laboratory is to be utilized, let it be used with circumspection and not as a momentary expedient. The foregoing discussion is not in conflict with the milk-handler examination program of the U. S. Public Health Service Milk Ordinance, which has been applied in this state. It will be recalled that this program includes the taking of careful disease histories, and the examination of specimens only when definitely indicated.

---

## BUREAU OF PREVENTABLE DISEASES

D. G. Gill, M. D., Director

### A NEW VENEREAL DISEASE REPORT CARD

In the control of all communicable diseases the first requisite is the knowledge of who has it, when did it occur and where. This necessity has been well recognized in the case of typhoid fever, diphtheria, smallpox, tuberculosis, etc., but with the venereal diseases this has not been the case. If the venereal diseases are to be controlled, however, health departments must know the extent of the problem and the population groups most concerned.

The conference on venereal diseases in Washington stressed the urgent need of more complete reporting and made certain recommendations as to the type of information necessary. The new Alabama report card is designed to meet these recommendations. It calls for reporting each individual case of syphilis or gonorrhea by name or initials. Reporting by number has been found to be unsatisfactory. If secrecy is desired, the initials will preserve the patient's identity and still enable the physi-

---

\*Writer's note.

4. Borman, E. K., West, D. E., and Mickle, F. L.: Laboratory Examination of Milk Handlers, A. J. P. H. A. 25: 557-570 (May) 1935.

5. Gilbert, R., and Coleman, M.: Practical Limitations in the Attempt to Control Enteric Disease by the Examination of Specimens, Collected without Regard to Clinical History or Epidemiological Evidence. A. J. P. H. A. 24: 192-193 (Mar.) 1934.

|   |                                    |   |   |
|---|------------------------------------|---|---|
| ALABAMA DEPARTMENT OF PUBLIC HEALTH       |                                    |   |   |
| REPORT OF VENEREAL DISEASE                |                                    |   |   |
| Name or Initials.....                     |                                    | <input type="checkbox"/> White <input type="checkbox"/> Colored <input type="checkbox"/> Male <input type="checkbox"/> Female   |   |
| Age.....                                  |                                    | <input type="checkbox"/> Single, <input type="checkbox"/> Married, <input type="checkbox"/> Widowed, <input type="checkbox"/> Divorced, <input type="checkbox"/> Separated. |   |
| Address (City, Town or R. F. D.)          |                                    |   |   |
| SYPHILIS                                  |                                    | GONORRHEA   |   |
| Early                                     | <input type="checkbox"/> Primary   | Positive Tests  | <input type="checkbox"/> Genito-Urinary |
|   | <input type="checkbox"/> Secondary | <input type="checkbox"/> Dark Field   |   |
|   |                                    | <input type="checkbox"/> Blood  |   |
| Late                                      | <input type="checkbox"/> Active    | <input type="checkbox"/> Spinal Fluid   | <input type="checkbox"/> Eye Infection  |
|   | <input type="checkbox"/> Inactive  |   |   |
| Prenatal                                  | <input type="checkbox"/>           | <input type="checkbox"/> Has  | { Received Treatment Elsewhere          |
| Congenital                                | <input type="checkbox"/>           | <input type="checkbox"/> Has Not  |   |
| Signed .....                              |                                    |   |   |
| M. D., Date.....                          |                                    |   |   |
| Address .....                             |                                    |   |   |
| (Please check (V) information applicable) |                                    |   |   |

Reverse Side

ALABAMA LAWS REQUIRE THE REPORTING OF ALL  
VENEREAL DISEASES.

PLEASE MAIL THIS REPORT CARD IN THE FRANKED ENVELOPE  
WITH THE WEEKLY COMMUNICABLE DISEASE CARD.

cian to recognize the individual concerned. In addition, certain other information is requested, such as age, race, sex, marital status, stage of disease, laboratory tests and the information as to prior treatment. Each item is on the card and a check (V) opposite the pertinent facts can be quickly made.

Each physician will be furnished with a supply of these cards which are the same size as the regular weekly morbidity card. It is requested that a card be made out on each case of syphilis or gonorrhea seen and this card be mailed in the franked envelope with the regular weekly report to the county health department, or in the case of the unorganized counties, direct to the State Department of Health.

A facsimile of this card is shown above. The medical profession is requested to continue the cooperation it has always shown by using this in reporting all cases of venereal disease.

EARLY SYPHILIS—THE SECONDARIES

(Continued from the January Journal)

Involvement of the mucous tissue occurs in about 56.2% of all patients showing secondary syphilis. Women usually show a much higher percentage of lesions than men and colored women the highest of all.

Syphilitic sore throat may vary from slight redness, with a sense of dryness, to extensive inflammation with the formation of a false membrane. The tonsillar involvement is often of the erosive type, with swollen red tonsils, covered with a greyish exudate. Involvement of the cords may result in redness, edema of the cords and impaired function, or hoarseness may be the only symptom. Complete aphonia may occur, coming on abruptly and ceasing equally as suddenly.

The mucous patch of the secondaries is actually an eroded macular or maculopapular lesion. The close relationship can be



seen when these lesions occur on the dorsum of the tongue. At this site little erosion occurs and the lesions then appear as papules with a dark pink or reddish color. But with the introduction of moisture and friction, the papules become eroded and the mucous patch results. This type of lesion is usually slightly raised with an oval or round central erosion. When the lesions occur on the side of the tongue, their shape may be irregular due to the greater amount of friction. Mucous patches may occur on the genitalia, but are, then, more common in women than in men.

Condylomas are in reality overgrowths of the layers of the skin, but they are not necessarily always of syphilitic origin. Any erosion may become hypertrophied under the proper conditions of moisture, friction and irritative discharge. The flat wart, *condyloma latum*, usually results from infection with syphilis. It usually begins as an eroded papule having a smooth surface or with a number of small projections. As it hypertrophies, it may mushroom out, but the stalk remains thick and short. Linear condylomas may develop in fissures or neighboring condylomas may become confluent. The *condyloma acuminatum*, or the pointed type of warty growth, is associated with a chronic discharge, especially that of gonorrhea. This type of lesion is often papillomatous and pedunculated. These various warty overgrowths are rarely seen about the oral mucous membranes, the skin and mucous junctions or on the male genitalia. It should be remembered that true warts may occur on the genitalia. Since about 90% of syphilitic condylomas show positive spirochetes on darkfield examination, all warty growths should be excluded by history, examination and darkfield.

#### VENEREAL DISEASE CONTROL IN A RURAL COUNTY

The Coosa County Health Department was organized November 1st, 1935 with offices in the Court House at Rockford. The County Medical Society, at its meeting the same month, unanimously adopted a syphilis control program as presented by the County Health Officer. This program gave the Health Officer *carte blanche* to proceed, since the four physicians practicing in the

county were too busy to treat or investigate cases of the disease. It was understood that all patients were to be treated free of charge; and the plan provided for one clinic session a week in the offices of the health department. Each infectious case of syphilis was to be investigated for source of infection and for spread contacts; and all patients absenting themselves were to be followed up in an attempt to return them to treatment. After the first clinic session on November 26th, it became generally known throughout the community that blood tests for syphilis were being made and the immediately succeeding sessions brought a greatly increased attendance, due to the desire of many individuals to be recipients of the service.

As a result of the success of the clinic in Rockford, the physicians and citizens of Goodwater, in May 1936, expressed a desire to have a clinic in that town. The County Health Officer, always interested in rendering services where demand arose, decided to hold a syphilis clinic in Goodwater on Thursday mornings. A third weekly clinic was started in Hillwood, in September 1936, following community expressions of the need for such a clinic.

The first clinic session in Rockford had an attendance of one, whereas the Goodwater clinic began with four patients and the Hillwood with 34. However, it might be well to state at this time that greater preparatory work was done in the Hillwood community before the clinic was instituted. This preparatory work consisted of daily blood Wassermann clinics for several days in order to ferret out the positive cases for reference to the treatment clinic. The attendance at each clinic, at the time of writing, is Rockford 33, Goodwater 44, and Hillwood 48. The average attendance for each clinic session from its inception until now is Rockford 21, Goodwater 26, and Hillwood 41. It might be brought out that only 18 patients (12 per cent) have become permanently delinquent; of these, 12 or 66 2/3 per cent moved out of the county and 6 or 33 1/3 per cent became unable to attend, due to lack of transportation facilities. Much delinquency was prevented by courteous service in the clinic, following the new adage, "A smile in the clinic is worth two follow-up workers." After patients had missed two consecutive clinic sessions, they

were first followed up by a letter or a personal visit. In two instances, where these methods were not productive of results, legal measures were instituted. Incarceration in the county jail was maintained for two weeks, following which the patients were released on probation.

To evaluate the program, the work done in the twelve months of 1936 will be statistically studied. During this time, 171 patients—7 white and 164 colored—received 1,723 doses of neoarsphenamine (0.6 gram); 1,035 two cubic centimeter injections of bismuth, and 441 mercury rubs at 106 clinic sessions. At the Rockford clinic, which was in operation throughout the year, the balanced average shows that each patient received during the year 14 injections of neoarsphenamine, 11 bismuth treatments and 32 mercury rubs. At the Goodwater clinic, which was in operation from May 7th, the balanced average was 9 neoarsphenamine and 9 bismuth treatments. The balanced average for the Hillwood clinic, which was opened September 4th, shows that each patient there received 9 neoarsphenamine and 5 bismuth injections. Seven patients were discharged after receiving the minimum amount of treatment to control infectiousness, consisting of 20 injections of neoarsphenamine and 20 of bismuth salt. However, during this time 123 patients (75 per cent) have received continuous treatment and will be eligible for discharge sometime in 1937. During 1936, there were eight letters written and 344 home visits made to recalcitrant patients. This resulted in 79 patients being returned to treatment schedule.

An effort was made in all instances to ascertain the source of infection and to trace all spread contacts. This entailed only a few visits since most contacts were brought to the office by the patients themselves. One hundred fifty-two individuals were examined, of whom 48 were source contacts and 104 spread contacts. Seventy-five were found to be infected. Of the total number of source and spread contacts, 66 were marital partners, 76 familial, and 10 extra-marital.

During this time, 1,376 blood serologic tests were made, of which 1,101 were initial ones. Of these, 123 were in white and 978 in colored patients. Of the initial tests

made on 123 white patients, 8 or 6.5 per cent were positive, whereas of the 978 made on colored patients 188 or 19.2 per cent proved positive.—*Contributed by W. D. Burkhalter, M. D., Health Officer of Coosa County.*

## BUREAU OF SANITATION

G. H. Hazlehurst, C. E., M. C. E., Director  
CLARIFICATION OF THE INSPECTION  
PROGRAM

As a preliminary step in the better integration of food quality control throughout the state, the following letter was recently sent by the State Health Officer to all county health officers:

During the series of district conferences held throughout the state in December, the policy of the Division of Inspection of the State Department of Health, in connection with local health department activities, was clarified and set forth; but in order that this policy may definitely be crystallized—avoiding the misunderstandings inherent in verbal announcements—this circular letter is being sent you, in advance of the publication of the revision of the bulletin "Policies and Practices of the Alabama State Department of Health."

### PROPOSED POLICY

1. *In counties provided with sanitation officers.* Such county health departments will ultimately be expected to assume the responsibility for the enforcement of all food-handling regulations of the State Board of Health, including the initiation of the occasionally necessary legal procedure. The first step in the program of transition will be the development, in each county, by the field representatives of the Bureaus of Sanitation and of County Organization, and yourself and sanitation officer, of an outline and schedule of the activities of your sanitation officer. Thereafter, at regular intervals, the district inspectors of the Division of Inspection will visit each county, check the local records and tabulations, and make check inspections of an adequate and representative number of the various types of establishments under supervision. Written reports of these findings will be made to the respective county health officers, and comparative analyses of successive reports will be made whenever the value of such comparisons is apparent.

So far as is practicable, the above policy will apply to fair grounds, circus, and carnival inspection activities. Prior to the beginning of the next season, cooperative efforts are to be directed toward permanent sanitation of fair grounds, and of regularly used circus lots.

As rapidly as local inspectors and sanitation officers indicate capacity to assume full responsibility for dairy and milk plant inspection activities, and the accurate determination of milk grades, this will be fully delegated to them. The effectiveness of the activities of local inspectors will be determined by milk sanitation rating surveys at regular intervals. When this transition takes place in any



county, the keeping of duplicate inspection reports and laboratory results by the Division of Inspection may be discontinued in favor of a system of monthly reports by the local inspector on each milk supply, which may constitute a permanent record without transcription.

In the cases of hotels, tourist homes, tourist camps, bottling plants, and other types of establishments, for the operation of which the holding of permits issued by the State Department of Health is prescribed, inspection activities will be conducted cooperatively, to assure that conditions justify the issue and retention of permits. Thereafter the policy will be determined by the provisions of the regulations and the exigencies of the situations then current.

2. *In counties not provided with sanitation officers.* No material changes in the policy and practices now in vogue in such counties is contemplated for the immediate future.

3. *General considerations.* In the matter of the determination of the quality, and conditions of preparation, of food stuffs shipped into a county from another state, or from another county in this state, the Division of Inspection will obtain such data at the request of any health officer (we have already received several such requests), and will serve as a clearing-house of such information.

In the development of extensions of present activities, or of new inspection activities, of a statewide character, the Division of Inspection personnel will undertake the initial surveys and studies, and subsequently introduce in the several counties the procedures to be followed.

It is anticipated that, before the next licenses of eating establishments, soda founts, and other establishments subject to inspection become payable, it will be possible in a number of counties to invoke the authority, granted in Section 1146 of the Code, as amended by the Legislature of 1935, to notify the probate judge and city clerk that permits must be obtained from the county health officer before licenses may be issued. Such a program should aid materially in this phase of public health work.

The foregoing outline of policy has been determined upon after much discussion, and conforms to the principle advocated by most public health authorities and the Public Health Service. Minor adjustments will probably be necessary, but we are expecting every member of personnel affected or involved to give this policy a fair trial. Suggestions for adjustments, after such trial has indicated unfitness, will receive attention.

Please be assured that this program is not an attempt abruptly to shift to county health departments a responsibility heretofore jointly borne. It is, rather, an attempt to clarify and to unify a program which has heretofore been rather variable throughout the state, and sometimes confusing. Expectations are that a considerable period will be required for ultimate adjustment. The function of the personnel of the Division of Inspection, meanwhile and continuously, shall be to instruct and advise local personnel, and eventually to extend its activities into fields not now reached. Your full cooperation in this endeavor is solicited.

In order that local inspectors and sanitation officers may be more fully equipped to

assume this greater responsibility, it is quite desirable that some of the State Board of Health regulations governing food-handling operations, some of which have remained unchanged since 1920, be amended and amplified. To this end, tentative hotel regulations and amplified crab meat picking regulations have been formulated. Regulations governing the operation of tourist camps (including trailer sanitation), and amendments to the milk, eating-establishment, bakery, soda fountain, and ice cream regulations are now being drafted for presentation to the State Committee of Public Health for adoption. More comprehensive inspection report forms are being formulated, to serve as better guides to sanitation officers in the conduct of inspections. This development in policy also entails the preparation of permit forms to be used locally, and of a simple system of filing and record keeping.

The printed "Manual for the Conduct of County Health Departments," as it applies to inspection activities, is being revised to include instructions necessitated by this development in policy.

The division also recognizes its responsibility to provide outlines of fundamental requirements and sketches of suggested plans to serve as a basis in the construction of milking barns and dairy milk houses, of slaughter houses or abattoirs, of places where mineral water is bottled, etc., and to study and approve construction and alteration plans of pasteurizing plants. Assistance to milk distributors newly entering the milk pasteurizing industry, in the determination of needed equipment and its arrangement, is also being made available; but, for obvious reasons, such aid cannot include the drawing of builder's plans.

This rather ambitious program entails such a volume of detailed work that all the mimeographed or printed forms necessitated by this program may not be available for a period of approximately six months.

C. A. A.

## BUREAU OF HYGIENE AND NURSING

B. F. Austin, M. D., Director

## PREVENTIVE PEDIATRICS

A great deal has been said and much has been written about the important and nec-

essary part to be taken by the general practitioner in preventive medicine. While most of the work in this field is done by the organized public health departments many activities are performed by physicians in their general practice. There are certain distinct, specific services which exert a fixed influence upon the control of diseases and the promotion of health which very properly are carried on by the physician.

Although there are many other services that may be rendered, the scope of this article will cover only some of those that are associated with childhood. When the baby is born the physician has the opportunity to impress the mother with the importance of breast feeding and to see that it is carried out in every possible instance. He can point out its advantages and emphasize the things which may be of influence and benefit to lactation. If the baby is to be bottle fed the supervision of that very trying period of infant life, teaching the value of milk modification, cleanliness and sterilization certainly aid in the prevention of gastric and nutritional disturbances.

*Preschool Age Child:* From infancy to school age is regarded as one of the most important periods of life from the viewpoint of moulding the mental and physical structure. We realize that the general practitioner is not a psychologist but he can readily acquaint himself with the outstanding principles covering what is regarded as an abnormal child and see that abnormalities are eradicated before they develop into increased morbid reactions.

The importance of the correction of postural and other physical defects can be stressed at this age period with far reaching results. Prophylaxis in correcting faulty nutrition and in dental hygiene during the preschool age should be emphasized by the family physician. Immunization against typhoid fever should be given, the Schick test made, and diphtheria toxoid administered to all Schick positive reactors. If smallpox vaccination has not been successfully made this should be done during the preschool period.

*The School Child:* The family physician has many opportunities to practice preventive medicine among school children. He can cooperate with the health officer and nurse in pointing out the value of speedily eliminating remediable physical defects,

improving health and mental retardation. He can also point out the value of control of communicable diseases by emphasizing the importance of isolation, the value of sera and that there is no need for all children to contract communicable diseases.

We fully realize that only a few of the many opportunities that are presented to physicians are included in these suggestions. They are given, however, with the hope that they may stimulate the medical profession to become even more alert to grasp the possibilities that await in preventive pediatrics. Not every physician is expected to be a skilled pediatrician, but he should appreciate the fundamental principles which influence and govern child health, and be equipped to impart this information to his patients. By virtue of his training he is expected to have a knowledge of the viewpoints of the sick and the well. As our knowledge of the causative factors of diseases and abnormal conditions increases the importance and possibilities of preventive measures applied by the family physician increase.

Let us, then, look forward with satisfaction to the medical profession for inculcating the principles of preventive medicine in the minds of the families of their clientele.

## CURRENT STATISTICS

### \*PREVALENCE OF COMMUNICABLE DISEASES IN ALABAMA

1936

|                             | Dec.<br>1936 | Jan.<br>1937 | Estimated<br>Expectancy<br>January |
|-----------------------------|--------------|--------------|------------------------------------|
| Typhoid .....               | 21           | 16           | 23                                 |
| Typhus .....                | 43           | 18           | 6                                  |
| Malaria .....               | 167          | 129          | 61                                 |
| Smallpox .....              | 0            | 2            | 14                                 |
| Meas'es .....               | 8            | 15           | 319                                |
| Scarlet fever .....         | 92           | 74           | 104                                |
| Whooping cough .....        | 32           | 118          | 131                                |
| Diphtheria .....            | 112          | 102          | 137                                |
| Influenza .....             | 441          | 1627         | 1039                               |
| Mumps .....                 | 65           | 326          | 127                                |
| Poliomyelitis .....         | 8            | 2            | 3                                  |
| Encephalitis .....          | 1            | 1            | 2                                  |
| Chckenpox .....             | 94           | 438          | 189                                |
| Tetanus .....               | 4            | 4            | 4                                  |
| Tuberculosis .....          | 253          | 235          | 230                                |
| Pellagra .....              | 9            | 10           | 13                                 |
| Meningitis .....            | 6            | 19           | 9                                  |
| Pneumonia .....             | 398          | 645          | 605                                |
| Syphilis .....              | 703          | 976          | 133                                |
| Chancroid .....             | 9            | 6            | 6                                  |
| Gonorrhea .....             | 284          | 435          | 154                                |
| Ophthalmia neonatorum ..... | 2            | 1            | 1                                  |
| Trachoma .....              | 0            | 1            | 0                                  |
| Tularemia .....             | 1            | 2            | 1                                  |
| Undulant fever .....        | 2            | 3            | 1                                  |
| Dengue .....                | 0            | 1            | 0                                  |
| Amebic dysentery .....      | 5            | 1            | 0                                  |
| Rabies- Human cases .....   | 1            | 0            | 0                                  |
| Positive animal heads ..... | 87           | 78           | .....                              |

\*As reported by physicians and including deaths not reported as cases.

The Estimated Expectancy represents the median incidence of the past nine years. With the venereal diseases, clinic cases were not included prior to this year.



# THE JOURNAL

OF

The Medical Association of The State of Alabama

Published Under the Auspices of the Board of Censors

Vol. 6, No. 10

Montgomery, Alabama

April 1937

## GRANULOMA INGUINALE

### DIFFERENTIATED FROM LYMPHOGRANULOMA INGUINALE

By

J. ULLMAN REAVES, M. D.  
Mobile, Ala.

One learned in granuloma inguinale and lymphogranuloma inguinale readily recognizes them as separate entities; yet, that confusion exists in the minds of some is evidenced by the frequent questions propounded by our colleagues, clearly showing an existing muddling of the two diseases despite their clinical dissimilarity.

The last word has not been said from a medical standpoint about any disease, and especially is this so when we are dealing with either granuloma inguinale or lymphogranuloma inguinale. In the vast majority of cases these two diseases show a tendency to select and elect for their existence a low type unclean individual, which, combined with their chronicity, renders their solving anything but easy. This difficulty is augmented by other diseases with simulating lesions which must be ruled out or treated at the same time. For example, a patient who is suffering with granuloma inguinale and is at the same time tuberculous or leucic is both a tuberculous individual, or a leucic as the case may be, and a victim of the first named disease. When Conyers and Daniels first described granuloma inguinale in 1896, they believed it to be tuberculous in origin, due to its being essentially a disease of the skin and subcutaneous tissues, either on or adjacent to the sexual organs and showing as a nodular infiltration with little or no tendency to spontaneous healing. In one of our cases, the disease persisted, according to the history, for twenty-three years before ultimate cure was established, and at no time was there involvement of the lymph nodes.

On the other hand, lymphogranuloma inguinale is a disease of the lymph nodes,

caused by a filtrable virus which can be transmitted to several of the lower animals by means of subdural injections, causing an encephalitis,<sup>1</sup> is of venereal origin, and classified by Cole,<sup>2</sup> von Haam,<sup>3</sup> and others as the fourth venereal disease. Frei and Hoffman, quoted by Zakon,<sup>4</sup> distinguish two periods of incubation. One period is from the time of the infecting coitus to the appearance of the primary lesion; the other is from the time of the infecting coitus to the commencement of the swelling of the inguinal node. This second period varies from ten days to a maximum of six weeks, with an average duration of from two to three weeks.

The initial lesion is so mild, in both manners and symptoms, that it often goes unnoticed by the patient and rarely falls within the observation of the physician. This initial lesion (Fig. 1) may present as a nodular, papular or herpetiform lesion; or it may appear as an intraurethral erosion simulating gonorrhea. The nodular involvement in the male, and those few cases in the female where the initial lesion is on the clitoris or upper margin of the labia, is in the inguinal region, following the anatomic lymphatic drainage. However, the lymphatics of the remaining female genitalia drain anatomically toward the deeper pelvic nodes and to the lymph nodes of Gerota around the lower part of the rectum. As a consequence, we frequently see in these cases an anorectal syndrome with cauliflower-like indurated lesions around the anal orifice, with or without attendant

1. Queries and Minor Notes: J. A. M. A. 102: 560-561 (Feb. 17) '34.

2. Cole H. N.: Lymphogranuloma Inguinale, the Fourth Venereal Disease J. A. M. A. 101: 1069-1076 (Sept. 30) '33.

3. von Hamm E.: Therapeutic Aspects of Lymphogranuloma Inguinale. Paper read before the Southeastern Surgical Congress, New Orleans, Mar. 11, '36.

4. Zakon, S. J.: Lymphogranulomatosis Inguinalis, Arch. Derm. & Syphil. 26: 238-249.

stricture of the rectal wall. These are often attributed by both doctor and patient to hemorrhoidal or syphilitic pathology. A few cases have been reported where the nodular involvement indicated an extra-genital primary lesion.



Fig. 1—*Lymphogranuloma Inguinale*. White male, age 36, laborer, native of Escambia County, Alabama. Herpetiform primary lesion on scrotum. Note autoinoculation to thigh and beginning multiple nodular involvement in inguinal region.

In reviewing the literature on granuloma inguinale we find most authors classifying it as a tropical or subtropical disease. This we do not agree with as most of our cases are natives of Mobile or nearby counties. No one of them ever lived in the tropics. While early authors, for the most part, classified granuloma inguinale as confined to the Negro, later writers have laid more stress upon the presence of the malady in the white race. Chief among these have

been Lewis<sup>5</sup> and Wilson,<sup>6</sup> with Fox<sup>7</sup> recording the ratio as nine to one in favor of the Negro and three to two in favor of the male. Our case, which gave a history of the longest duration (23 years) and of being one of the most destructive clinically, was in a white fisherman, a native of Finland who came to Pensacola, Florida, in 1910, contracted his initial lesion in 1912, and was not completely healed until October 1935 (Fig. 2).

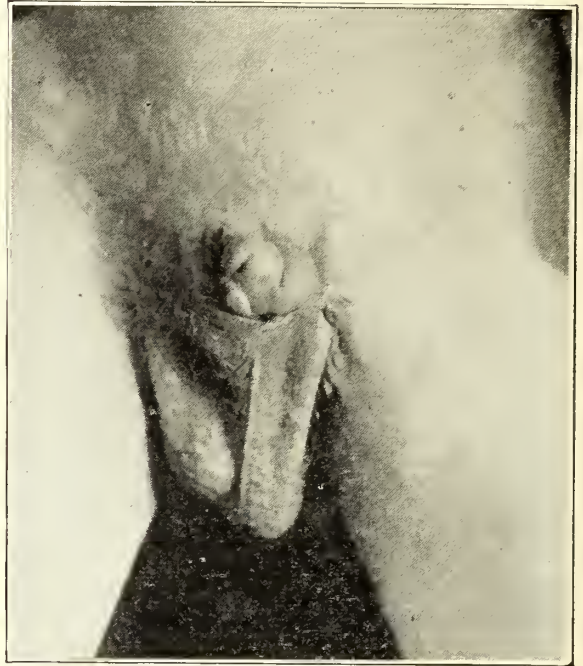


Fig. 2—*Granuloma Inguinale*. White male, native of Finland, fisherman. Immigrated to Pensacola, Florida, at age 24. Contracted initial lesion at age 26. This picture was made when he was first cured, 23 years later. Note extensive scar involving both inguinal regions and attaching the scrotum to either thigh. Contraction of the connective tissue surrounding the corpora cavernosum due to this inflammatory process has grossly dwarfed the penis.

We have yet to find a sexual partner of a patient suffering with granuloma inguinale either with the disease or who gave a history of having had it. Wilson<sup>6</sup> reported fourteen cases in his obstetric practice, and in no case was the husband or any member of the family infected nor did any one of

5. Lewis, S. J.: *Granuloma Inguinale*, South. M. J. 25: 836-840.

6. Wilson, L. A.: *Pregnancy and Labor Complicated by Granuloma Inguinale*, J. A. M. A. 87: 1785-1789.

7. Young: *Practice of Urology*, 2: 191, 1926.



them give a history of having had the disease. On the other hand, Cole<sup>2</sup> believes that granuloma inguinale is as much venereal as lymphogranuloma inguinale. The variance of these views is beclouded because we are dealing with a class of patients who, for the most part, are unmoral rather than immoral.

Granuloma inguinale is an open ulcer, the surface of which is covered with coarse granulations so well described as "beefy red." The skin margins are quite irregular, generally somewhat raised and rather rugose, with moist proliferations of the tissues, spreading by contiguity in any direction or by autoinoculation and peripheral extension, or by contact, as from the genitalia to the inside of the thighs (Fig. 1) or where the folds of the prepuce overlap. During all of this there is no involvement of the lymph nodes, although pseudo-*elephantiasis* of the genitalia has been observed in a number of cases, in both male and female, due to involvement of the lymph channels.

The organism supposed to cause this disease was first described by Donovan in Madras in 1905. All later investigators support this causative conclusion discussed in this early treatise and have given the organisms the name of Donovan bodies.

Donovan bodies have been grown upon culture media by various workers, among whom are Aragae and Vianna, Gage,<sup>8</sup> McIntosh,<sup>9</sup> and Goldberger and Peck.<sup>10</sup> McIntosh,<sup>11</sup> using the method of inoculation, transferred the disease from one patient to another. The method of demonstrating Donovan bodies used by most men interested in this work is as follows: A portion of the ulceration is selected where evidence of spreading rather than healing exists. Wet dressings of physiologic salt solution are applied to this area for 24 hours. The surface is then scraped with a dull curette or the edge of a sterile glass slide. The material thus obtained is spread on several slides and allowed to dry thoroughly. Leishman's

stain is applied to the smear or smears, allowed to stand for four minutes and then diluted with one-half volume of distilled water and allowed to stand for another minute. The slides are then washed with running water and dried with a blotter. The Donovan bodies are generally found within the endothelial leucocytes, appearing either as cocci or diplococci, or at times as bacilli, with or without a surrounding capsule of pinkish hue.

Diagnosis is not difficult when one has a case presenting without glandular involvement, with a history of long standing ulceration on or adjacent to the genitalia, which gives off a thin discharge of a peculiar pungent odor. This odor is sometimes defined as "sour smelling" and is very characteristic. However, a scientific diagnosis of granuloma inguinale demands a demonstration of Donovan bodies.

Granuloma inguinale when uncomplicated gives very little discomfort as the lesions are but mildly sensitive and the symptoms purely local. The patient's chief complaint is itching or, at times, a burning sensation plus the presence of the lesion, which is either dry or moist, with the accompanying foul odor. Should the lesion or lesions be confined to the penis, the insidious chronicity, together with the stubborn resistance to treatment evidenced in some cases, tends to bring about three grave pathologic conditions: 1. The development of *elephantiasis* (Figs. 3 and 4), which is characterized by a progressive local hypertrophy, beginning as a lymphangitis involving the vascular and connective tissues of the subcutaneous layers situated between the skin of the pudenda and Buck's fascia. When this condition coexists the inconvenience caused thereby is a predominating symptom (Fig. 5). 2. The formation of scar tissue resulting from the inflammatory involvement of the connective tissue surrounding the corpora cavernosum with ultimate contraction, dwarfing the penis to the size of grade iv umbilicus (Fig. 2). 3. If the inflammatory process involving the subcutaneous vascular and connective tissues succeeds in breaking through the dense fibroelastic Buck's fascia at any point, it so acts on the connective tissue of the trabeculae of the corpora cavernosa to bring about a gradual but sure amputation of the penis (Fig. 6).

8. Gage, I. M.: *Granuloma Inguinale*, Arch. Derm. & Syphil. 19: 764-768.

9. McIntosh, J. A.: *The Donovan Body of Granuloma Inguinale*, South. M. J. 21: 434-438.

10. Goldberger, Max, and Peck, S. N.: *Granuloma Venereum*, Arch. Path. & Lab. Med. 1: 511-525.

11. McIntosh, J. A.: *Etiology of Granuloma Inguinale*, J. A. M. A. 87: 996-1001.

Antimony and potassium tartrate (tartar emetic) given intravenously has proved almost a specific for these lesions. It is given in one per cent solution, the initial dose being five cc. and increasing one cc. each subsequent dose. This drug may be given in amounts as high as twenty cc., although such a dose may produce emesis, a variable shock reaction or marked shoulder

sium tartrate. This has been our observation. It also has the advantages of intramuscular administration.

Numerous local antiseptics, ultra-violet rays, x-rays and the actual cautery have been used with varying success. In numbers of cases we were confronted with relapses, thus calling for prolonged and repeated treatment.

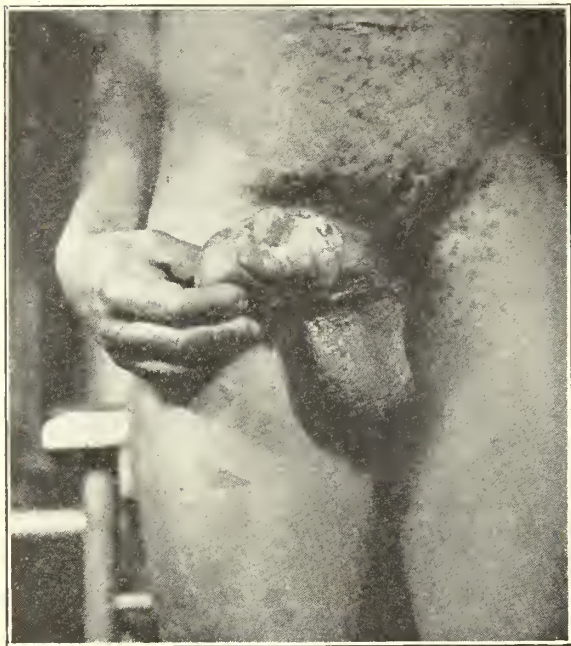


Fig. 3—*Granuloma Inguinale*. Colored male, native of Mobile. Laborer, age 30. Initial lesion in prepuceal cavity when 24 years of age. Elephantiasis developed early in the disease and slowly progressed. Dorsal incision second year of the disease. Patient in Kilby prison and the granuloma inguinale is uncured.



Fig. 4—*Granuloma Inguinale*. Same as Fig. 1 but showing the existing lesion which circles the shaft of the penis. Note the scrotum being free of involvement.

pa'ns due to its cumulative action. In some cases this procedure has given excellent results, and in other cases has left everything to be desired. Professor Khalil of the University of Cairo experimented with a newer antimony compound, sold under the trade name of fuadin,<sup>12</sup> which was considered by him to be a safe and rapid specific for granuloma inguinale. Recently Williamson<sup>13</sup> reported that fuadin seemed to be generally superior to antimony and potas-

12. Rajam, R. V.: Note on Treatment of Infective Granuloma with "Fouadan," *Indian Med. Gazette* 69: 372 (July) '34.

13. Williamsen, T. V., Anderson, J. W.; Kimbrough, R., and Dodson, A. I.: Specific Effect of "Fouadan" (Fuadin) on Granuloma Inguinale, *J. A. M. A.* 100: 1671-1676.

Granuloma inguinale begins as a small papule with reddish, delicately skinned granulomatous proliferations which bleed easily, making confusion likely with chancroidal lesions when seen before the lesion makes much headway. If we are to believe that chronic irritation over a long period of time is conducive to the development of malignancy, it is but natural that some of these cases which go on for months and years should show evidence of malignancy (Figs. 7 and 8) and we should be ever on the alert to recognize such complication or degeneration should it be coexistent.

When one sees an occasional case of granuloma inguinale or lymphogranuloma inguinale, he is apt to be confused, not so





Fig. 5—*Granuloma Inguinale*. Colored male, native of Geneva County, Alabama, age 54, laborer. Initial lesion in prepuceal cavity eight years ago at age 46. Elephantiasis of penis and scrotum. Note the absence of nodular involvement in either inguinal region.



Fig. 6—*Granuloma Inguinale*. Colored male. Here penetration of Buck's fascia and attacking the connective tissue of the corpora cavernosa brought about complete amputation of the penis. Note the scarring extending from the anus to the symphysis encircling the scrotum en route. Courtesy of Dr. Edgar Burns, New Orleans, La.

much with the diseases as clinically presented but with their similar nomenclature. Lymphogranuloma inguinale, unlike the purely local symptoms of granuloma inguinale, is often the cause of constitutional symptoms, such as elevation of temperature, headache and malaise, accompanied in some cases by enlargement of the spleen, loss of weight or rheumatic symptoms. In



Fig. 7—*Granuloma Inguinale*. Colored male, native of Baldwin County, Alabama, age 32, laborer. At age 29 he noticed initial lesion on his perineum. He was healed three times before reaching this condition.

a few exceptional cases a skin eruption is noted which resembles either erythema nodosum or erythema multiforme.

A cutaneous test, announced by Frei<sup>14</sup> late in 1925, is regarded as a specific in lymphogranuloma inguinale and the sensitivity persists apparently for life. This antigen is now put up by one of our reliable biologic houses, which is a step toward standardization and if this goal is attained it will render a much needed service. In patients suffering from lymphogranuloma inguinale or in those who have previously had the disease, an intradermal injection of 0.1 cc. of the antigen is given, producing an inflammatory papule within twenty-four

14. Frei, W.: Eine neue Hautreaktion Bei Lymphogranuloma Inguinale, Klin. Wehnschr. 41: 2148.

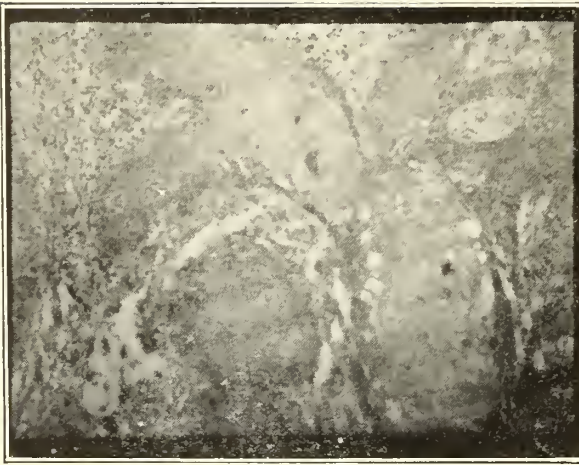


Fig. 8—*Carcinoma*. Microphotograph from biopsy section of Fig. 7.



Fig. 10—*Lymphogranuloma Inguinale*. Primary lesion healed. Unilateral inguinal node involvement. Colored male, age 27, native of Mobile.

hours which persists for several days or longer (Fig. 9). Thus the Frei test would be positive in a case wherein there had been a previous lymphogranuloma inguinale infection when the nodular involvement presenting could be from some other source, such as chancroidal. It should be noted that the size of this papule varies depending upon the severity of the involvement. This cutaneous allergy is known to develop quite early in the disease, and, though the time of its appearance may vary, it will most generally be positive by the time the skin overlying the inguinal adenitis has become attached to the mass of involved nodes.

The involvement of the inguinal nodes may be unilateral (Figs. 2 and 10) or bilateral (Fig. 11). As the disease pro-



Fig. 9—*Lymphogranuloma Inguinale*. Positive Frei skin test. Inguinal nodes show evidence of matting together. Colored male, age 24, native of Mobile County.



Fig. 11—*Lymphogranuloma Inguinale*. Noticed small abrasion on foreskin three weeks previous which healed with "calimus" powder (dry calomel). Bilateral inguinal node involvement. Colored male, age 26, native of Mobile County.



gresses, the areola tissue surrounding the nodes becomes inflamed, matting them together in large, hard, indolent masses which are subacute and relatively painless. They suppurate at several distinct points which, on incision and after the evacuation of their purulent contents, may be said to resemble a wasp's nest with unsymmetrical cells. The course of the disease is usually chronic. In a very few cases the adenitis may regress spontaneously, but as a rule it runs a course of weeks and months. Here again, if we believe that chronic irritation over a long period is conducive to the development of malignancy, we must be on the lookout for such pathology. One of our female

itive Frei skin reaction. It must be differentiated from syphilis, chancroid, buboes, tuberculosis, actinomycosis and, in some regions, pestis minor.

Here our treatment has likewise consisted of numerous local antiseptics, ultra-violet rays, x-rays and the use of the actual cautery with varying degrees of success. In the case of lymphogranuloma inguinale, the oldest method, as well as the one recommended by a great host of clinicians, is the early removal of the affected glands. Most confidence is placed in chemotherapeutic measures. These are combined with asepsis in granuloma inguinale, and with asepsis and excision or drainage, according to



Fig. 12—*Lymphogranuloma Inguinale*. Colored female, age 38, native of Washington County, Alabama. First seen in September 1935 presenting a typical clinical lymphogranuloma inguinale. Treatment refused. This picture made at the undertakers April 4, 1936, after death. Note beginning elephantiasis of both lips of vulva.

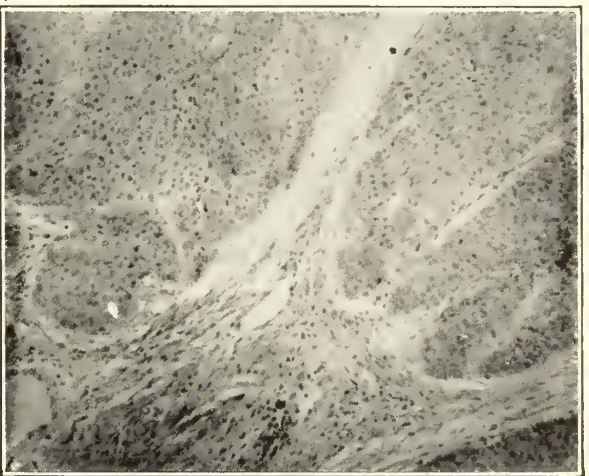


Fig. 13—*Carcinoma*. Microphotograph from biopsy section of Fig. 12.

cases, with elephantiasis of both labia, left inguinal nodular involvement and a positive Frei skin test, who refused treatment, was seen six months later with a definite carcinomatous mass complicating the nodular involvement (Figs. 12 and 13).

Pathologically, lymphogranuloma inguinale is an infectious granuloma with milary abscesses, and must always be considered in cases of inflammatory swelling of the inguinal nodes which show multiple fistulas on breaking down. We are aided in establishing a diagnosis by obtaining a history of a small ulcer on the genitalia which, as a rule, tends to heal quickly, being followed by a subacute regional adenitis running a torpid course accompanied by a pos-

the inguinal node involvement, in lymphogranuloma inguinale.

The multiplicity of remedies in these conditions may be taken as good evidence of the inconclusive effect produced by therapeutic agents thus far tried. None seems to hasten recovery when the lymph nodes are involved or to improve the cases presenting an anorectal syndrome. In our hands antimony and potassium tartrate and, later, fuadin<sup>13</sup> have given some therapeutic benefit. Some cases developed antimony-fastness or a toxic intolerance to the particular antimony product employed. Other cases were unsatisfactory regardless of the treatment, which is in the empiric zone where it will undoubtedly remain until a better understanding of the etiologic factor or factors is obtained.

## CONCLUSIONS

(1) With granuloma inguinale a primary skin disease, it can be readily seen that its similarity to lymphogranuloma inguinale exists only in nomenclature and that it is treated by the same medicinal agents.

(2) Lymphogranuloma inguinale is a venereal disease. This cannot be said of granuloma inguinale.

(3) A patient with a small or large ulceration around the genitals should receive a darkfield examination, and examination for Donovan bodies, and a Frei skin test if nodular involvement is evidenced.

(4) Fuadin is superior to antimony and potassium tartrate (tartar emetic) in the treatment of either granuloma inguinale or lymphogranuloma inguinale.

(5) We must be ever alert, else the irritation caused by either of these long standing maladies may result in complications which will either aggravate the condition presenting or overshadow it in severity.

303-4-5 6 Van Antwerp Building.

## ANEMIA IN PREGNANCY\*

By

GILBERT B. GREENE, M. D.  
Birmingham, Ala.

The anemias which are encountered in pregnancy are classified generally as physiologic, hypochromic and pernicious.

The first type is defined as a hydremia, and is not considered a true anemia. Exhaustive work by Dieckman, Plass and Castle, in which they examined specimens of blood from patients at the beginning of pregnancy and thereafter for each month until the puerperium, revealed the following: There was an increase in blood volume of 23%, the plasma of 25% and total erythrocytes of 20%, and a subsequent dilution of the red cells. They noted an average decrease in hemoglobin concentration of 15% from early pregnancy to the 25th to the 35th week. From that time on to delivery the hemoglobin increased 13%, and this is thought to be due to fetal demand for iron. From the time of delivery to within ten

days postpartum there was an abrupt rise of both hemoglobin and red blood cells. This change was thought to be due to a readjustment of the blood plasma and the red blood cells. This rise went to the same level as it was at the beginning of pregnancy. In the hydremia which these men observed the red blood cells have never gone below three and one-half million, or the hemoglobin below 70%.

Treatment: For anemias of this type there is no specific therapy except an adequate diet of protein and vegetables.

The hypochromic type is an anemia due to iron deficiency and is the most common variety encountered. In these cases we find a reduction in the hemoglobin which greatly exceeds the decrease in the red blood cells. Here the red cell count is lower than three and one-half million and the hemoglobin is under 70%. This condition is found mostly in patients among the poorer classes, who are unable to secure adequate diet. Associated with the condition are gastric secretory defects, such as hypoacidity or anacidity. The various causes of this type of anemia are, first, inadequate diet; second, defective utilization of iron due to gastric anacidity or hypoacidity; third, the demands of the fetus on the maternal tissue; fourth, fetal iron storage; and, fifth, maternal demands for new tissue growth.

Treatment: These patients respond to large doses of iron and a diet consisting mostly of meats, eggs and green vegetables.

The third type of anemia, namely, pernicious or macrocytic, is rarely encountered. The etiology is thought to be a lack of an intrinsic factor in the gastric juice, or, in other cases, an extrinsic factor which is associated with vitamin B. In these cases we find the same clinical picture as is found in non-pregnant patients. The color index is over one and the blood smear shows enlarged immature red blood cells.

Treatment: This type of anemia is successfully treated by the use of liver; its prevention can be achieved in many instances by the administration of a diet rich in foods containing the vitamin B complex, such as meat and other proteins.

About six months ago we began some work on anemia in the obstetric department of the outpatient clinic of the Hillman Hospital. The result of our investigation show-

\*Read before the Jefferson County Medical Society, Birmingham, January 4, 1937.



ed that there had been admitted 229 white and 267 colored patients, making a total of 496. Test of the hemoglobin at the initial visit of the patients to the clinic revealed for the white women 67% and for the colored 62.6%. The highest hemoglobin encountered was 87%, and the lowest 45%. The majority ranged from 60 to 70%. Seventy-five per cent of the patients in both the white and colored departments had a hemoglobin less than 70, twenty per cent between seventy and eighty, and five per cent between eighty and ninety.

Eighty per cent of the patients came to the prenatal clinic for the first time anywhere from four to six weeks prior to delivery. Due to the economic status of these patients, realizing the type of food they were eating and judging from their hemoglobin reading, it was concluded that they were of the hypochromic variety. Three groups of patients were selected for study. The first group of thirty patients was selected in which the hemoglobin was from 60 to 70 per cent. The method used in determining the hemoglobin was the Sahli method. These patients were not treated for the deficiency and at the first or third day postpartum a hemoglobin taken from them showed an average decrease of one to two per cent. A second group of patients whose hemoglobin averaged 63% was given dried ferrous sulphate. This was administered in a mixture of simple syrup and glycerin. A teaspoonful dose was the equivalent of five grains and was ordered three times a day. A majority of the group complained of being nauseated and of vomiting. Capsules containing the drug were not given because they were not available. There was an increase in the hemoglobin of these patients postpartum of 4% where the drug had been taken a month prior to delivery, and of 8% where the drug had been taken as long as two months.

In the last group, thirty patients whose hemoglobin averaged 64% were selected. They were given a 50% saturated solution of ferric ammonium citrate. One dram of this was equivalent to 30 grains, and the patients were given a teaspoonful three times a day. The postpartum Sahli was the same as that noted in the ferrous sulphate group. Only one or two patients in the group complained of gastric disturbance.

#### INCIDENCE OF ANEMIA AT HILLMAN HOSPITAL

July-December, 1936

|                     | White                          | Colored                        | Total |
|---------------------|--------------------------------|--------------------------------|-------|
| No. of cases.....   | 229                            | 267                            | 496   |
| % Hb. ....          | 67%                            | 62.6%                          |       |
| Admission to clinic | 75% in last 2 mo. of pregnancy | 85% in last 2 mo. of pregnancy |       |

#### RESULTS OF IRON THERAPY

| Group             | No. of Cases | Average Original Hemoglobin | Length of Treatment | Hemoglobin Post partum |
|-------------------|--------------|-----------------------------|---------------------|------------------------|
| Control           | 30           | 67%                         | 4-8 weeks           | 1-2% decrease          |
| FeSO <sub>4</sub> | 30           | 63%                         | 4-8 weeks           | 4-8% increase          |
| Fe. Amm. Cit.     | 30           | 64%                         | 8 wks. interval     | 4-8% increase          |

#### DISCUSSION

From the figures shown it is apparent that the majority of the patients seen in the clinic arrive too late for iron therapy to be of much value. It has been shown that if the patients are treated consistently during the last three months of pregnancy there will be a definite rise in the hemoglobin and the red blood cells. Even the patients who have taken the iron for only four to eight weeks state that they feel much stronger and better. Those patients who were given no therapy of any sort had a drop in their hemoglobin and red blood cells. Due to the fact that we cannot control the diet of the patients coming to the clinic, we must be content to give them what little help we can by the use of iron therapy.

#### CONCLUSIONS

1. Three types of anemia are discussed in this paper, the etiology and treatment.
2. The group of patients studied at the clinic were of the hypochromic variety. They were seen late in pregnancy and were helped to a degree by iron. If they had been seen and treated from the beginning of pregnancy, the anemia could have been prevented or controlled.
3. In this series of cases the physiologic and pernicious types of anemia were not encountered.

1117 S. 22nd Street.

The 1937 Jerome Cochran Lecture will be delivered by Dr. Frank H. Lahey, Boston—his subject, "Carcinoma of the Colon and Rectum."

## THE PRE- AND POSTPARALYTIC MANAGEMENT OF ACUTE AN- TERIOR POLIOMYELITIS\*

By  
W. W. ALEXANDER, M. D.  
Florence, Ala.

The recent outbreak of poliomyelitis in Alabama has brought to our minds the necessity of stressing the importance of good after care. However, since the disease is too often first recognized by the presence of paralysis, certain remarks concerning the ravages of the disease, its symptomatology and preparalytic treatment shall be made preliminary to a discussion of the post-paralytic management.

Acute anterior poliomyelitis is a specific infectious disease, the active cause of which is now known to be a filtrable virus of some sort. The disease is thought of as one involving the central nervous system from the beginning. The virus enters the body through the nose and throat, traveling by way of the olfactory nerves to the central nervous system, particularly the lower brain and the anterior horns of the grey matter or motor tract of the spinal cord. The principal and perhaps only source of infection therefore is from the secretions of the nose and throat.

Analyses of previous surveys have indicated that three of every four clinically definite cases reported resulted either in death or permanent deformity, thus making it a much more terrible scourge than the other more common communicable diseases such as scarlet fever and measles.

In Lauderdale County a total of fifty-seven cases were reported, all of which showed definite paralysis, or at least marked weakness of some group or groups of muscles. Three of the patients died, twelve have apparently made a complete recovery, and forty-two were left crippled. Out of this group of forty-two patients, eight are permanently disabled, with little or no hope for appreciable improvement. Although nowhere as widespread as the commoner communicable disease, the sad results so frequently following the infection make it one of our most serious maladies.

An analysis of 355 cases by the State Department of Health reveals that the re-

cent epidemic which occurred in Alabama followed the general course of previous epidemics elsewhere; as regards percentage of patients disabled, age incidence, ratio between urban and rural population, seasonal peak incidence, distribution of cases by place of residence, and a predilection for white people.

As in all epidemics, the onset and course of the disease varies. The initial symptoms are frequently so mild that they are hardly noticed unless other cases in more advanced stages are present in the family, or more especially the community, and the sudden appearance of paralysis may be the first warning that the supposedly "mild cold" was of much more serious consequence. At the onset, the symptoms resemble those of many other acute infectious diseases, and especially those common to all illness in children, as a change in disposition, disinclination to play, irritability, crying at night, grinding of the teeth, anorexia, constipation, tremulous coated tongue, and general dissatisfaction with its surroundings.

During the recent epidemic, the first symptoms noted usually were general malaise, backache, slight fever, anorexia, constipation, and headache, the latter being often a prominent symptom. Very shortly afterwards, moderate stiffness of the neck, accompanied or followed by drowsiness or even stupor, appeared. In many such cases, and especially during an epidemic, no further symptoms develop and the diagnosis can only be made by the presence of pleocytosis in the cerebrospinal fluid. Often in this stage of the disease, the first suggestion of involvement of the neuromuscular system is the occurrence of severe pains and tenderness in the muscles of the extremities, particularly in a limb which is destined to be the site of paralysis.

The neurologic examination at this stage reveals variable findings dependent upon the chief site of involvement in the central nervous system at the time. There may be some rigidity of the neck with a slightly positive Kernig, or a Brudzinski, which is a most dependable sign when present. The tendon reflexes are frequently hyperactive. There are no sensory changes as a rule. Polyneuritis may sometimes be a manifestation of the virus of poliomyelitis.

\*Read at a meeting of the Northwestern Division of the Association, Jasper, January 8th, 1937.



Examination of the cerebrospinal fluid is the most valuable method of making a definite diagnosis in the preparalytic stage. Pleocytosis varies from 15 to 1,200 cells per cubic millimeter of spinal fluid. These, in the very early stage, or in fulminating cases, are predominantly polymorphonuclear leucocytes, although there is always a rapid change to a lymphocytosis. The cerebrospinal fluid sugar is normal. The total proteins are often slightly increased, and the pressure is either normal or increased slightly depending upon the extent of the meningeal involvement. The diagnosis is, therefore, primarily clinical and depends on a clinical suspicion of the disease substantiated by evidence derived from examination of the cerebrospinal fluid.

Paralysis usually occurs in the first four days of the disease, most generally the second or third day, and it rarely occurs or gets worse after the eighth day. The paralysis may come on all at once, with subsequent partial or complete recovery, or it may be progressive. The paralysis is of the flaccid type except in that more rare encephalitic form which frequently affects adults. In this type, the infection localizes in the Betz cells of the motor cortex which are analogous to the anterior horn cells of the spinal cord, and there is a resulting spastic paralysis since these are the cells of origin of the pyramidal tracts.

The ordinary form of paralysis is that with one or more extremities involved. The paralysis occurs most frequently in the lower extremities, is asymmetric, and may be partial or complete. One or all four extremities may be affected as may the muscles of the trunk, thorax or head. Examination shows the muscles to be soft and flabby and often tender with loss of tendon reflexes, but no sensory disturbances.

Other more serious forms of the disease are the progressively ascending type resembling Landry's ascending paralysis, with ultimate involvement of the respiratory centers, and death from respiratory paralysis; and the bulbar type which may result in rapid respiratory failure and death, or, in its less virulent form, result in difficulty in speech and swallowing with possible death from inhalation pneumonia. If the patient does not die of respiratory or cardiac failure or a complicating bronchopneumonia, the paralysis will have reached its

greatest extent and begins to subside by the end of a week following its onset.

In order to follow the course of the treatment of anterior poliomyelitis carefully, the disease is best considered in four stages:

Treatment of the acute or preparalytic stage of the disease cannot be entirely dissociated from the convalescent care of the paralytic patient for the dividing line between these phases is too ill defined, and certain of the symptoms of the acute state are apt to extend indefinitely into the convalescent period, thus complicating the after care of the paralyzed patient. Its treatment should be wholly medical. Spinal puncture done during the earliest stage of the disease reveals not only evidences of meningeal infection, but relieves the congestion and edema of the cord and the pressure on the nerve cells with possible retardation of additional progress of the disease, and permits to some extent early recovery of nerve function.

Specific serum therapy is correct in principle, but serum of proven value is not available at the present time.

It must be borne in mind, however, that the tendency in poliomyelitis is toward recovery and that while residual paralysis will occur in a certain number of cases, it is often much more pronounced because of neglect of affected muscles or improper treatment.

The second stage begins as soon as the temperature becomes normal and no further spinal punctures are indicated. The muscles have shown definite paralysis or weakness, and sensitiveness, often pain, is still present. The objects of treatment at this stage are the relief of sensitiveness and the prevention of early damage to the affected muscles by over stretching. Although the primary lesion is in the nerve cells, it must be remembered that secondary changes occur in the muscle fibers, and if these are stretched, the damage may be so great that a muscle which eventually would have functioned may be permanently paralyzed. To give nature a chance to repair the damage and to prevent further injury, the muscles must be kept in a position that will insure the greatest amount of recovery. These two things are the basis of all therapy and everything else is secondary.

Complete immobilization of the limbs for any period of time in the correct position will result in shortening of the sensitive muscles, increased atrophy and loss of joint motion. Immobilization of the legs is best obtained by the use of posterior wire splints or bivalved plaster casts, which hold the legs in a neutral position, but can be removed easily for light passive motion of the knees and hips which should be given twice daily, flexing each to the point of pain once or twice. Otherwise, when active treatment is started, contracture of the posterior gluteal muscles at the hip, preventing the patient from sitting up on a chair, may be found, and the knees cannot be bent because of tightness of the knee extensors, stretching of which may result in permanent muscle damage. Deformities may, however, be successfully prevented by holding the legs and trunk in their normal position by means of sandbags, or a box to hold the feet at right angles, with the body kept in a straight position by the use of pillows.

The joints of the upper extremities should be treated in the same way. A patient with shoulder muscles affected should not be allowed to keep the arms close to the body with the elbows flexed. A small pillow in the axilla will prevent adduction contractures if a splint is not available, and a bandage around the wrist may be pinned to the bed to keep the elbow in partial extension. The use of pillows, even though they must be adjusted frequently to maintain the desired position, is preferable to a solid plaster cast if the patient is to be immobilized for any period of time because this interferes with return of muscle power and produces stiffness of the joints.

Rest in the proper position is the most essential thing during this period and the patient should be moved as little as possible except for nursing care. A Bradford frame may be used to carry the patient.

The sensitiveness can be most easily combated by the application of hot packs given two or three times a day for about fifteen minutes. If both arms and legs are sensitive, the entire body should be wrapped in wet blankets or towels which have been placed in hot water and wrung out. A rubber sheet outside will keep the heat in and protect the bed. If only the legs are tender or painful, the hot packs

may extend from the waist down. The heat should not be intense enough to be debilitating, or to require the use of an ice bag to the head. Dry heat from electric pads, hot water bottles, or radiant light bakers may be applied to the sensitive or painful areas, but moist heat seems to be more effective in lessening the sensitiveness due to the virus of anterior poliomyelitis. This stage usually lasts from a few weeks to two or three months and no massage should be given until all pain and sensitiveness are gone. Sensitiveness of the muscles should be relieved as soon as possible in order to start muscle training.

The third, or convalescent stage, starts when cutaneous tenderness is over, and includes that period when the muscles make the greatest gain in power. It is at this time that active physical therapy, or re-education of the affected muscles is started. The first step, however, is to make a complete test of each and every prime movement and an estimation of the relative strength of the muscles producing them. A complete muscle examination of this type can be made only by one who has a thorough knowledge of functional anatomy and knows the relative normal strength of the different muscles examined. At this time an examination shows either a definite flaccid paralysis of the muscles affected, or, if a mild case, some degree of muscle weakness.

Rapid regaining of power in one group of muscles over its opposing group will necessitate changes in exercises to prevent unbalance; therefore, in order to guide correct muscle training, at all times, frequent muscle examinations must be made. These muscle examinations are usually made every month for four months, every two months for two examinations, every four months for five years, then every six months thereafter.

The advantage of underwater treatment is that gravity, that is the weight of the limb, is largely eliminated; friction is lessened; motions may be completed more easily; the patient learns coordination and gains confidence and morale more quickly; and walking may be practiced much earlier than outside. These adjustments are eventually carried over out of water, thereby preparing the patient for the adjustment of learning to walk in braces.



Treatment at this time lays emphasis on the prevention of fatigue and of deformities by concentrating on measures to re-educate the affected muscles and to develop strength whenever response can be obtained. Sitting up and walking, or the use of a wheel-chair, are the worst things that the child can be allowed to do, if his muscles are not strong enough to hold his body in the normal position. Even though there may be slow recovery of muscle strength, habitual weight bearing results in displaced bones and stretched ligaments which do not return to normal.

If there is only slight weakness of the legs, weight bearing should not be allowed until the muscles have regained their normal strength. Even then, it must be remembered that muscles which have been weakened by the virus of poliomyelitis fatigue more readily than normal, and allowance must be made for this fact. If the legs are badly involved, most authorities prevent weight bearing six to nine months, if the muscles continue to show improvement under treatment, in order that the progress may not be impeded. During this period daily massage improves nutrition and carefully directed muscle reeducation strengthens the weakened muscles. If the circulation is markedly affected, some form of heat preceding the massage is beneficial in this stage. Patients with marked paralysis of the legs should continue to wear splints during the earlier stage; however, it is important that they be removed twice daily and as much motion as possible without pain be carried out in all the joints.

The fourth, or chronic stage, starts after the muscles have ceased their rapid return to function. A certain number will have progressed to complete recovery, or to such an extent that only occasional supervision is necessary. The remainder, by the end of the first year, as a rule, sometimes longer, will need orthopedic care with operative measures as indicated. It should be remembered, however, that the majority of these cases will continue to benefit from the muscle training and massage as received during the preceding stage, as evidenced by a slow actual gain in muscle strength, and an improved use of the body as a whole in normal activities.

Alabama has experienced its first epidemic of anterior poliomyelitis. This epi-

demic has followed the general course of previous epidemics elsewhere, and there has been a high percentage of crippling.

Treatment should be begun at once in order that deformity may be prevented. Complete rest and immobilization with limbs in the neutral position should be insisted upon as soon as the paralysis or weakness occurs. These measures prevent contracture and aid in the relief of the sensitive stage. A complete muscle examination should be made as soon as the sensitive stage is over, and from this the muscle training is planned. Reexamination to determine gain or loss of muscle power should be made at definite intervals. This check should be made for years. Although the greatest recovery occurs in the first year, with proper treatment slow but real progress can be made over a period of years.

---

## HAY-FEVER IN ALABAMA\*

### ANALYSIS OF ONE HUNDRED CASES

#### II

By

CLARENCE K. WEIL, M. D.  
Montgomery, Ala.

#### DIAGNOSIS

The diagnosis of seasonal hay-fever can usually be made from the history alone. The abrupt onset at almost the identical date year after year, the paroxysms of sneezing, the alternate blocking and dripping of the nose, the itching of the nose, eyes and roof of the mouth, the burning of the eyes with photophobia and epiphora, terminating after a few weeks almost as suddenly as they began, constitute a clear-cut clinical picture that is hardly to be confused with any other disease. Vasomotor rhinitis or perennial hay-fever, because of its milder symptoms, its lack of seasonal relationship, and the absence of itching of the eyes and nose may so resemble other nasal disturbances, such as acute rhinitis and chronic catarrh, that differentiation may be extremely difficult. A history of other allergic disturbances or a family history of allergy may suggest the true nature of what had previously been considered frequent colds, but the pallor and edema of the nasal mucous membrane,

---

\*Concluding installment. The first part appeared in the March number.

with a high percentage of eosinophiles in the nasal smear and blood, should clinch the diagnosis. Occasionally in difficult cases it may be necessary to resort to the use of small doses of adrenalin by hypodermic, this drug relieving the swelling due to allergy but being without effect on the nasal mucous membrane swollen because of acute rhinitis or obstruction.

TABLE 4\*

|                           | Seasonal<br>Hay-Fever.<br>70 Cases | Perennial<br>Hay-Fever.<br>30 Cases |
|---------------------------|------------------------------------|-------------------------------------|
| Asthma .....              | 37%                                | 23%                                 |
| Urticaria .....           | 11%                                | 20%                                 |
| Eczema .....              | 10%                                | 6.5%                                |
| Canker Sores .....        | 3%                                 | 0                                   |
| Migraine .....            | 4.5%                               | 3%                                  |
| Angioneurotic Edema ..... | 27%                                | 0                                   |
| Serum Sickness .....      | 1.5%                               | 3%                                  |
| Pollen Enuresis .....     | 1.5%                               | 0                                   |
| Present .....             | 55%                                | 50%                                 |
| Absent .....              | 45%                                | 50%                                 |

Despite the difference in severity of symptoms in the seasonal and perennial groups an analysis of the two shows so much in common that the allergic nature of the latter group seems obvious. Table 4\* shows the percentage of cases of hay-fever and vasomotor rhinitis that were accompanied by or gave a history of various other allergic manifestations.

Seasonal hay-fever was encountered about twice as often as perennial hay-fever, which may possibly be explained by the fact that many patients and physicians alike failed to realize the allergic background responsible for many cases that complain of frequent colds throughout the year. Cases of seasonal hay-fever may be divided into spring, summer and fall groups. Frequently patients have symptoms in two seasons of the year. Patients with perennial hay-fever frequently have exaggeration of their symptoms during the winter or acute symptoms may arise at some particular season of the year due to an accompanying pollen sensitization. Table 5 shows the classification of one hundred cases according to the seasonal incidence.

*Determination of the Antigen Responsible for Symptoms:* The determination of the antigen responsible for symptoms was based not only on skin testing but on ophthalmic and intranasal testing, upon the re-

sults of dietary experiments in the case of foods, occasionally upon the trial of treatment and always on the basis of an accurate history and a follow-up of at least two years.

TABLE 5

|                            |          |
|----------------------------|----------|
| Seasonal Hay-Fever .....   | 70 cases |
| Spring .....               | 17 cases |
| Spring only .....          | 13 cases |
| Spring and fall .....      | 3 cases  |
| Spring and summer .....    | 1 case   |
| Summer .....               | 22 cases |
| Summer alone .....         | 19 cases |
| Fall .....                 | 39 cases |
| Fall only .....            | 31 cases |
| Fall and summer .....      | 3 cases  |
| Fall and spring .....      | 3 cases  |
| Fall and perennial .....   | 2 cases  |
| Vasomotor Rhinitis .....   | 30 cases |
| Summer exacerbations ..... | 7 cases  |
| Fall exacerbations .....   | 1 case   |
| Spring exacerbations ..... | 1 case   |

Materials used for testing included pollens, inhalants, emanations, foods and molds. The pollens included not only the various species found in the state but in addition practically all pollens available on the market. The inhalants and emanations included the ones usually used for skin testing and in addition such special substances as were of particular interest to us as investigators in search of factors previously unrecognized in this state. Among the unusual antigens used for testing were included Johnson grass hay, corn-shucks, quail feathers and the smut affecting some of our grasses. None of these antigens produced any reactions in this series, though reactions to corn-shucks were encountered in a few asthmatics living on farms. The moulds used for testing included the entire group prepared by the Arlington Chemical Company, a second group prepared by Doctor S. M. Feinberg of Chicago and a third group grown on culture plates exposed in the homes of patients. At no time were any significant reactions produced by any of these moulds.

The cutaneous or scratch test always preceded intradermal testing and experience proved that this was a wise precaution. Reactions to some antigens, such as pecan and ragweed pollens, horse hair, flaxseed and cottonseed, were so violent that local reactions involving the entire forearm were not unusual and severe asthma and generalized urticaria at times followed the injection of

\*Tables 1-3 appeared in Part I.



even minute amounts of very dilute solutions of these materials. These reactions were always frightening to the patient and unpleasant for the physician. Those who are not familiar with these reactions and the methods of combating them should be extremely careful in using any of the above antigens for intradermal testing.

The reliability of skin tests seems to vary with the enthusiasm of the observer. When a novice in this field, the author placed great confidence in this method of diagnosis. A larger experience brought out certain definite limitations.

(1) Reactions to pollen were usually of definite clinical significance if the skin reaction was large enough to be termed a three-plus or four-plus response. Weaker reactions were rarely significant. In interpreting the response to pollen testing, one should be guided chiefly by this rule—if the period of symptoms corresponds to the period when the reacting pollen is found in the air, that pollen may be considered as definitely proved to be the cause of symptoms.

(2) Reactions to inhalants and emanations are about as reliable as those to pollens.

(3) Reactions to foods are quite unreliable. This does not mean that testing with food antigens is without value. Frequently the elimination of those foods giving positive reactions relieves the patient at once and saves many months of searching by dietary experiment to find the food causing trouble.

Though the ophthalmic and intranasal methods of testing were used occasionally in seasonal cases showing no skin reactions, no additional information was obtained through these methods.

SEASONAL HAY-FEVER

If one is going to treat hay-fever in Alabama, he is primarily interested in the causes of hay-fever in this section rather than in the causes of hay-fever in some distant part of the country. For this reason the following table (Table 6) should prove of practical value to those interested in hay-fever in Alabama.

TABLE 6  
CAUSES OF SEASONAL HAY-FEVER

|   |          |
|---|----------|
| Spring Hay-Fever .....                    | 17 cases |
| Pecan pollen .....                        | 14 cases |
| Oak pollen .....                          | 2 cases  |
| Elm pollen .....                          | 1 case   |
| Fall Hay-Fever .....                      | 39 cases |
| Ragweed pollen only.....                  | 36 cases |
| Ragweed pollen and cocklebur pollen ..... | 3 cases  |

|  |          |
|--|----------|
| Summer Hay-Fever .....   | 22 cases |
| Grass pollen, positive skin tests ..                             | 7 cases  |
| Negative skin tests treated with grass pollen—results good ..... | 3 cases  |
| Negative skin tests treated with grass pollen—results poor.....  | 2 cases  |
| Negative skin tests treated with grass pollen—no relief.....     | 9 cases  |
| Negative skin tests—cause unknown .....                          | 1 case   |

It will be noted that about half of the seasonal cases occurred in the fall of the year and the remaining half were equally divided between spring and summer. Most of the spring cases were due to pecan pollen with oak and elm pollens causing an occasional case. All of the fall cases reacted to ragweed and this pollen was considered as the chief factor in all of the fall cases. It was surprising to learn that only about half of the summer cases were due to grass pollen, the remaining half being due to some as yet unknown substance.

*Pecan Hay-Fever:* Patients who are sensitive to pecan pollen usually have symptoms at least as severe as those due to ragweed pollen and frequently more severe. Half of the cases in this series had pollen asthma as well as hay-fever, the asthmatic symptoms usually beginning a week or two after the onset of hay-fever.

Pecan pollen is found in the air from the middle of April until the latter part of May, but it is not unusual, especially in dry seasons, for the hay-fever to continue to the middle of June, the asthma sometimes persisting longer.

No one should attempt to use pecan pollen either for diagnosis or treatment without realizing before hand the extreme degree of sensitiveness that patients have to this pollen. Positive skin reactions have been obtained with intradermal tests using solutions as dilute as 1/1,000,000 and constitutional reactions of a severe degree have followed these injections. Great care must be observed in selecting the initial dose of pecan pollen and it is wiser to start with a dose one-tenth the size that one would consider safe rather than take a chance of producing severe constitutional reactions. Titration by scratch testing with various dilutions of pecan pollen should precede treatment and it is wise not to read the reactions until at least twenty minutes have passed. It has been our custom to test in-

tradermally with a solution one-tenth as strong as the one that failed to react positively to the scratch test. We have also found it wise never to give the first treatment until twenty-four hours after the skin testing has been completed. In the course of treatment it is also necessary to use precautions in order to avoid constitutional reactions, a local reaction always indicating the necessity of reducing the dose and of proceeding even more cautiously than before. With some patients it may be possible to reach a final dose of 0.3 cc. of a 1/100 solution but in others a lack of tolerance may make it necessary to stop at a dose one one-hundredth this size. All of the first six patients treated by us had constitutional reactions at some time during the course of treatment, but careful observation of the above instructions prevented reactions in the later cases.

Despite the difficulties of treating this type of hay-fever, the patients in our series obtained between 30 and 90% relief. The average relief for the first season was 75%.

The pecan is the only cultivated tree which has proved of importance in the production of hay-fever. The tree grows very well in the southern two-thirds of the state. It produces a crop that is not perishable and always finds a ready market. The tree may be grown on pasture land without decreasing to an appreciable degree its forage value. The popularity of the tree with the farmer is therefore assured and without doubt pecan trees will be planted in greater numbers as the years go by. Even in cities, the pecan is popular as a shade tree and we have seen patients with pecan pollen hay-fever who had trees growing against their windows thus exposing themselves to tremendous quantities of pecan pollen.

Oaks and elms constitute the chief shade trees of Alabama cities and the former comprise a large part of our forests. Despite the abundance of these trees and the large amount of pollen which they produce, they are of far less importance than the pecan, probably due to the lesser toxicity of their pollen. There is nothing unusual about the hay-fever caused by these pollens. Treatment involves little danger of generalized reaction if ordinary precautions are taken. the state of Alabama and though some, like mate 90% improvement.

Though many other trees are present in

the State of Alabama and though some, like pine, are so abundant that pollen forms a yellow dust over furniture and a yellow scum over still waters, nevertheless, none but the three above mentioned trees have been responsible for hay-fever either in this series or in other cases studied by the author.

#### FALL HAY-FEVER

It may be accepted almost as an axiom that fall hay-fever in Alabama (September 1st to frost) is due to ragweed pollen. Though other pollens have reacted on testing they have been considered as minor factors in the production of symptoms, and treatment has usually been instituted with ragweed alone. In the three cases in which cocklebur was used in conjunction with ragweed pollen, the former probably added little to the results of treatment. From the antigenic standpoint, cocklebur is closely related to ragweed and mild reactions on skin testing are generally encountered on patients sensitive to ragweed pollen. The artimesia is also closely related. This latter pollen is of extreme toxicity and should be used only with those precautions mentioned above in the employment of pecan pollen. Though amaranths and chenopods are considered minor factors in the production of hay-fever in other sections of the country and despite the fact that these plants are very abundant in Alabama, they were responsible for no cases in our series, nor did the occasional reaction to their pollen on skin testing have any significance so far as the symptoms were concerned.

The chief varieties of ragweed in Alabama are the common or dwarf ragweed and the giant ragweed. In some sections of the state every roadside, unplowed field, fence line and empty lot is filled with ragweed. The giant variety has some preference for moist places where it grows to a height of fourteen feet and is filled with large blossoms the size of one's thumb that are literally packed with pollen. The pollen granules themselves are among the smallest of pollens and their small size and lavish numbers result in wide dissemination while the great toxicity of the pollen makes it the chief factor in the production of hay-fever in Alabama.

Ragweed begins to pollinate about the first of September, the season at times opening a week before or after this date.



The season ends the latter part of October or when frost has destroyed the plants or heavy rains cleaned the flowers and air of pollen granules. It is an interesting fact that the further north one goes, the earlier is the ragweed season. Patients traveling out of the state may begin their symptoms in New England as early as August 15th and returning home have freedom from symptoms until the early part of September. Those who wish to avoid contact with ragweed by travel would do well to determine beforehand the presence of ragweed in the locality in which they are seeking relief.

In its toxicity ragweed pollen is comparable to that of pecan. Initial doses as low as 0.1 cc. of a 1/2,000,000 solution have been used. Constitutional reactions have resulted from doses only twice that size. On the other hand some patients are able to take as an original dose 0.1 cc. of a 1/100 solution and have been able to build up a tolerance to doses as large as 1.0 cc. of 1/100 solution. These observations stress the importance of careful testing of various solutions before giving the original dose. Constitutional reactions during the course of treatment may be expected from time to time unless great care is used in increasing the doses in proportion to the increase in tolerance. One may expect 80 to 95% relief from desensitization.

#### SUMMER HAY-FEVER

Summer hay-fever occurs between May and September, occasionally beginning a little earlier but always lasting through the hot summer months. Twenty-two cases in this series of one hundred were classified as summer cases. During this season the grasses contribute most of the pollen found in the air and the plantains, amaranths, chenopods and docks also ripen during this period. The study of this group has brought out some interesting facts. Only two of the twenty-two patients reacted to scratch tests with grass pollens and five additional patients reacted to intradermal testing with 1/100 solutions. None of the remaining fifteen reacted to grass pollen. Testing with various different grasses gave no additional reactions. The ophthalmic route gave uniformly negative results. In fourteen cases treatment with grass pollen

despite negative skin tests was tried as a diagnostic measure but in only three cases could the results be considered good enough for the patients to be satisfied with the results. If these three cases are considered as due to grass pollen, the total number of summer cases due to grass pollen amounts to ten, leaving twelve cases—a little more than half—in which the causative factor was not determined. This group of twelve patients was carefully studied, using foods, inhalants, emanations, moulds and house dust, but in none was the responsible antigen determined. It must be admitted that we do not yet know the cause of over half of the cases of hay-fever occurring in the summer months.

The possibility that these cases of unknown origin might not be true hay-fever was ruled out by the following observations: (1) The mucous membrane of the nose of five patients observed during the presence of symptoms was typically pale and boggy, the nasal smear showing between 90 and 100% eosinophiles. (2) The average white blood cell count in nine patients was 7,300 with 11% eosinophiles, the degree of eosinophilia varying between 4% and 22%. (3) Adrenalin relieved these patients of their nasal symptoms. There is thus no reason to assume that these cases were not hay-fever.

#### PERENNIAL HAY-FEVER

This group includes thirty patients with symptoms present intermittently or continuously during the year. Though the symptoms were less severe than in those with seasonal hay-fever, the nasal mucous membrane during an attack was just as pale and swollen as in patients with seasonal hay-fever. The nasal smear showed an eosinophilia varying between 50% and 100%, a smaller percentage of polymorphonuclears being encountered due to chronic nasal infection which so frequently accompanied the vasomotor rhinitis. The average white cell count in this group was 9,200 with individual counts ranging between 4,900 and 16,500. The average degree of eosinophilia was 8% with extremes between 2% and 24%. The total eosinophilia varied between 276 and 2,280 per cubic millimeter.

TABLE 7

CAUSES OF PERENNIAL HAY-FEVER OR  
VASOMOTOR RHINITIS

|   |          |
|---|----------|
| <i>House Dust</i> —Chief Factor.....                            | 17 cases |
| House dust alone .....  | 11 cases |
| House dust and flaxseed.....                                    | 1 case   |
| House dust and orris root.....                                  | 1 case   |
| House dust and food.....  | 1 case   |
| House dust, horse hair and feathers.....                        | 1 case   |
| House dust and horse hair.....                                  | 1 case   |
| House dust, pollen and food.....                                | 1 case   |
| <i>Cat Hair</i> .....   | 1 case   |
| <i>Feathers</i> .....   | 1 case   |
| <i>Ephedrine</i> .....  | 1 case   |
| <i>Foods</i> —Chief Factor .....                                | 2 cases  |
| Nuts and eggs.....  | 1 case   |
| Potato, tomato, and egg plant.....                              | 1 case   |
| <i>Dubious</i> .....  | 8 cases  |
| Undetermined (no reactions).....                                | 4 cases  |
| Treated with house dust—no relief .....                         | 2 cases  |
| Treated with house dust and elimination of foods—no relief..... | 1 case   |
| Reaction to house dust, two-plus only .....                     | 1 case   |

Reference to the above table (Table 7) makes obvious (1) that house dust is the chief factor in the production of over half the cases of perennial hay-fever; and (2) that almost one-third of the cases are of unknown etiology.

The habits of the people of Alabama played no part in producing sensitization to any special allergens. Cottonseed was not a factor in the production of vasomotor rhinitis. Corn meal was responsible for no cases. Dog hair and the feathers of game birds played no part. The feathers of chickens, geese and ducks, the dander of the cat and horse, flaxseed and orris root caused one or two cases only. The use of ephedrine in the nose was responsible for one case—a type of contact vasomotor rhinitis. The foods as a whole caused two cases and were a minor factor in two others.

Seasonal exacerbations were encountered in nine cases (see Table 5) but most of these patients complained also of an increase in symptoms during winter months due to closed houses, smoke, over-heating indoors and chilling out-of-doors, as well as respiratory infections. Exacerbations during the spring and fall were due to accompanying hay-fever. In the seven cases with an increase of symptoms in the summer, no pollen reactions were encountered.

The increase in symptoms in the summer may be explained either by some climatic influence or more likely by assuming that these cases belong to the group of summer cases of unknown origin discussed above.

The results of treatment in vasomotor rhinitis were not as good as in the group of seasonal hay-fever. An estimate of these results is shown in Table 8.

TABLE 8

RESULTS OF TREATMENT IN 30 CASES OF  
VASOMOTOR RHINITIS

|                            |          |
|----------------------------|----------|
| Excellent—90% to 100%..... | 11 cases |
| Good—75% to 90%.....       | 5 cases  |
| Fair—60% to 75%.....       | 6 cases  |
| Poor—less than 60%.....    | 8 cases  |

Average result of treatment—73% relief.

## CONCLUSIONS

1. A group of one hundred cases of hay-fever in Alabama has been studied to determine the peculiar local factors which cause or modify the disease.

2. Seasonal hay-fever was encountered in practice about twice as often as perennial hay-fever, but except for the greater severity and seasonal incidence of the former, the two conditions were very similar from both clinical and laboratory aspects.

3. In the southern two-thirds of the state, pecan pollen is the chief cause of spring hay-fever. Its pollen is extremely toxic and must be used with great caution.

4. Ragweed pollen is the cause of almost all hay-fever in Alabama between September 1st and frost. It is almost as toxic as pecan pollen.

5. Grass pollen is responsible for scarcely half of the cases of summer hay-fever. The cause of the remainder is unknown.

6. House dust is responsible for over half of the cases of perennial hay-fever, and the cause of almost one-third of these cases is unknown.

7. With pecan pollen, grass pollen, ragweed pollen and house dust one can determine the cause of and successfully treat about 80% of the cases of hay-fever in Alabama. The remaining 20% will offer great difficulties until our knowledge of this subject is more complete.

8. By observing certain precautions in testing and treatment, hay-fever may be treated without unpleasant reactions. Such treatment should afford between 70% and 90% relief of symptoms.



# THE JOURNAL

OF THE

## Medical Association of the State of Alabama

### Editor-in-Chief

FRED W. WILKERSON.....Montgomery

### Associate Editors

M. Y. DABNEY.....Birmingham  
W. D. PARTLOW.....Tuscaloosa  
J. N. BAKER.....Montgomery  
DOUGLAS L. CANNON.....Montgomery

Please send in promptly notice of change of address, giving both old and new; always state whether the change is temporary or permanent.

### Office of Publication

519 Dexter Avenue.....Montgomery, Ala.

Subscription Price.....\$3.00 Per Year

April 1937

### THE ADMINISTRATION OF IODINE IN TOXIC GOITERS

At the meeting of the American Association for the Study of Goiter in June 1936, Wetherell and Groat<sup>1</sup> presented a paper on the use of iodine in this condition. They admonish us that "to sound a warning that the mortality rate of thyroidectomy will increase unless means are found for disseminating information anent the danger of improperly including administration of iodine in the medical management of these cases does not seem out of place. . . There is a growing tendency to disregard Plummer's dictum that iodine should be used only as a preoperative preparation. The latter is a dogmatic yet a safe rule. . . That importunings of the patient should influence the judgment of the physician is inexcusable. That 'another will if I do not' is even more questionable logic."

As to the exceptions to Plummer's dictum, the authors state that iodine may be properly used in small doses for hypothyroidism and colloid goiter and they further assert that "with a definite understanding of its limitations and dangers, it may be used as an expedient in mild hyperthyroid states and as an aid in differential diagnosis."

1. Wetherell, F. S., and Groat, W. A.: The Use of Iodine in Toxic Goiters, J. A. M. A. 108: 547 (Feb. 13) 1937.

The Syracuse investigators say that there is no particular advantage in any one preparation containing iodine. When they use the compound solution of iodine they have found orange juice to be the best tolerated vehicle. "The potassium or sodium salt is equally effective and may be excellently disguised in the new raspberry syrup."

The authors remind us that, in skilled hands, the mortality rate of thyroidectomy is less than one per cent. They have done well to warn practitioners again of the dangers inherent in the prolonged and excessive administration of iodine and it is to be hoped that their sound advice will be heeded. Their concluding paragraph follows: "The statement that it (iodine) should then be used only in the preparation of the patient for operation, and perhaps postoperatively, is heartily echoed by those who have had to deal surgically with patients who have had temporizing treatment which included the improper administration of iodine."

### MAY DAY

#### CHILD HEALTH DAY, 1937

A resolution was passed by the National Congress on May 18, 1928 authorizing the President to proclaim May 1st Child Health Day each year.

The Children's Bureau has been requested by the State and Provincial Health Authorities of North America to sponsor May Day Child Health Day activities for 1937.

The slogan for this year is "Health protection for every child." The purpose of the country-wide celebration is to arouse the interest of the people in this non-controversial subject. To aid in accomplishing this result the assistance of every physician in Alabama is requested.

The objective is the same as announced in 1936—"To promote the extension of year-round child health services in every community, including services for physically handicapped children."

Every one realizes that activities that aim toward the improvement of child health must be continuous. It is also recognized that without the aid of the practicing physicians little can be accomplished. We, therefore, urge the physicians of Alabama to lend their support to the program of activities when presented.

## Committee Contributions

### PREVENTION OF CANCER

#### WOMEN'S FIELD ARMY

It is probably generally known by physicians throughout the state that the American Society for the Control of Cancer began the organization of the "Women's Field Army" about a year ago. The working components of this organization is made up entirely of women. Physicians will be called upon to aid them in an advisory capacity. Just as the American Society for the Control of Cancer receives its advice from physicians, so will the Women's Field Army look to physicians for advice and direction.

The organization of the Women's Field Army is as follows:

#### NATIONAL

American Society for the Control of Cancer

Executive Committee  
Managing Director  
Field Representatives  
Chief Adviser  
National Advisory Board

#### STATE

Board of Censors, State Medical Association

State Cancer Committee  
State Commander  
Vice-Commanders

#### DISTRICT

Board of Censors, County Medical Society

County Cancer Committee  
Captain

#### LOCAL

Local Advisory Board  
Lieutenant  
Local Unit Staff

As will be seen, all activities of this organization are under the direction of recognized medical authorities. The Association and the Women's Field Army are anxious to see that this continues to be true. If the physicians of the state will give the Women's Field Army their cooperation, there will be no excuse for asking help outside of the medical profession.

The activities of this organization are divided into five groups:

1. Publicity,
2. Educational and enlistment campaigns,
3. Distribution of literature,
4. Lectures and mass meetings,
5. Exhibits.

It is generally believed that any improvement in cancer mortality and morbidity rates will be the direct result of the publicity of the generally known facts in the control of cancer, particularly early diagnosis. We, as physicians, cannot do this alone; the Women's Field Army will help us.

Through this organization, educational and enlistment campaigns will be instituted as was and is being done in the fight against tuberculosis, and, more recently, syphilis. Much of this will be done by the Women's Field Army.

The distribution of literature can and will be more generously done by the Women's Field Army than has been possible by the medical profession. Similarly, more exhibits can be shown through this organization to more people than by the physician.

Lectures to large or small groups must necessarily be given by the physicians of the state. It is in this work that the County Medical Societies will be of greatest value to the cause of cancer control. The State Medical Association earnestly requests every member to assist in this work so that it will not be done by persons outside of our organization.

In Alabama the organization of the Women's Field Army has begun. Upon the request of the Association, Mrs. W. C. Blasingame, of Tuscaloosa, has been chosen State Commander. Mrs. Blasingame is spending considerable time and thought in the choice of Vice-Commanders (one for each congressional district). Her success depends upon her assistants as the task is beyond the capacity of a single individual. Please accord her and her assistants your aid and advice.

---

The Association, in annual session, Birmingham, April 20-22, will have, as one of its guest-speakers, Dr. Porter P. Vinson of Richmond, Va.

---



PROGRAM OF THE ANNUAL SESSION  
BIRMINGHAM

APRIL 20-21-22, 1937

THE TUTWILER HOTEL

Host To The Association

The Jefferson County Medical Society

COMMITTEES

Advisory

Dr. J. S. McLester, *Chairman*

Dr. J. M. Mason                      Dr. Seale Harris, Sr.  
Dr. Cabot Lull                      Dr. D. F. Talley

Arrangements and Exhibits

Dr. H. Earle Conwell, *Chairman*

Dr. George S. Graham              Dr. D. S. Moore  
Dr. Andrew Glaze                  Dr. C. H. Ford

Finance

Dr. B. S. Lester, *Chairman*

Dr. Sid W. Collier                  Dr. Joseph E. Hirsh

Entertainment

Dr. Alfred A. Walker, *Chairman*

Dr. Frank Wilson                  Dr. Edgar G. Givhan

Woman's Advisory Committee

Mrs. R. M. Brannon                  Mrs. Clifford Lamar  
Mrs. John W. Simpson              Mrs. Sid W. Collier

Publicity

Dr. James R. Garber, *Chairman*

Dr. Cecil Gaston

First Day, Tuesday, April 20

1. Call to Order at 10 A. M. by the President—  
*Lloyd Noland, Fairfield.*
2. Invocation—
3. Address of Welcome—  
*S. L. Ledbetter, Jr., President, Jefferson County Medical Society, Birmingham.*
4. Presentation of the President—  
*A. B. Coxwell, Senior Vice-President, Monroeville.*
5. Message of the President—
6. Reports of the Vice Presidents—
  - (1) *A. B. Coxwell, Monroeville.*
  - (2) *W. M. Salter, Anniston.*
  - (3) *C. P. Haycs, Elba.*
  - (4) *Merle Smith, America.*
7. Report of the Secretary—  
*Douglas L. Cannon, Montgomery.*
8. Report of the Treasurer—  
*J. U. Ray, Woodstock.*

9. Report of the Committee of Publication—  
*Fred W. Wilkerson, Montgomery.*

10. Reports of Standing Committees—

- (1) Public Relations—  
*John A. Martin, Chairman.*
- (2) Mental Hygiene—  
*Frank A. Kay, Chairman.*
- (3) Maternal and Infant Welfare—  
*A. E. Thomas, Chairman.*
- (4) Prevention of Cancer—  
*K. F. Kesmodel, Chairman.*
- (5) Prevention of Blindness and Deafness—  
*Job Cater, Chairman.*
- (6) Postgraduate Study—  
*Ralph McBurney, Chairman.*
- (7) Fractures and First Aid—  
*H. Earle Conwell, Chairman.*

Afternoon Session

Tuesday, April 20

2:00 P. M.

1. HARRISON, W. GROCE, JR., M. D.  
Birmingham, Alabama.  
Paper—"The Modern Conception of Congestive Heart Failure."
2. BENNETT, CLARENCE R., M. D.  
Eufaula, Alabama.  
Paper—"Angina Pectoris."
3. SNELLING, DAVID B., M. D.  
Montgomery, Alabama.  
Paper—"The New Protamine Insulin in the Treatment of Diabetes Mellitus." Illustrated.
4. McLESTER, JAMES B., M. D.  
Birmingham, Alabama.  
Paper—"The Functional Patient."
5. MORGAN, J. O., M. D.  
Gadsden, Alabama.  
Paper—"Mucocoele of the Appendix." Illustrated.

Evening Session

Tuesday, April 20

8:00 P. M.

1. VINSON, PORTER P., M. D.  
Richmond, Virginia.  
Paper—"The Bronchoscopic Management of Pulmonary Abscess." Illustrated.
2. McKAY, HAMILTON W., M. D.  
Charlotte, North Carolina.  
Paper—"Certain Phases of Pediatric Urology." Illustrated.

3. TURLINGTON, LEE F., M. D., and LAMAR, CLIFFORD, M. D.

Birmingham, Alabama.

Paper—"Contraception, Its Need, Purpose and Accomplishment."

### Second Day, Wednesday, April 21

#### Morning Session

9:00 A. M.

1. BARFIELD-CARTER, M., M. D.  
Birmingham, Alabama.  
Paper—"Paget's Disease." Illustrated.
2. PEAKE, JOHN DAY, M. D.  
Mobile, Alabama.  
Paper—"Report of 189 Cases of Carcinoma of the Cervix." Illustrated.
3. STABLER, ERNEST VERNON, M. D.  
Greenville, Alabama.  
Paper—"Clinical Importance of Simple Cysts of the Ovaries."
4. WALSH, GROESBECK, M. D.  
Fairfield, Alabama.  
Paper—"Psychogenic Factors in Disease." Illustrated.
5. LAHEY, FRANK H., M. D.  
Boston, Massachusetts.  
Paper—"Carcinoma of the Colon and Rectum." Illustrated. (Jerome Cochran Lecture.)

#### Afternoon Session

Wednesday, April 21

2:30 P. M.

1. HARRIS, SEALE, JR., M. D.  
Birmingham, Alabama.  
Paper—"Cardiovascular Syphilis."
2. JOHNSON, HUGH DENT, M. D.  
Montgomery, Alabama.  
Paper—"Presacral Sympathectomy in Dysmenorrhea." Illustrated.
3. CONWELL, H. EARLE, M. D.  
Birmingham, Alabama.  
Paper—"Emergency Traction For Safe Transportation in Fractures of the Long Bones." Illustrated.
4. TRACY, ANNA M., MISS  
Tallahassee, Florida.  
Chairman, Administration Section, American Dietetic Association.  
Paper—"Hospital Dietetics."

#### Evening Session

Wednesday, April 21

8:00 P. M.

#### PUBLIC MEETING

1. HEYD, CHARLES GORDON, M. D.  
New York City.  
President, American Medical Association.  
Paper—"The Contribution of the American Medical Association to the Public Health."
2. NORRIS, E. W., M. D. (U. S. Public Health Service.)  
Hot Springs, Arkansas.  
Paper—"Syphilis."

### Last Day, Thursday, April 22

9:30 A. M.

1. Business meeting of the Association sitting as the Board of Health of the State of Alabama.
  - (1) Report of the Board of Censors;
  - (2) Revision of the Rolls;
  - (3) Election and Installation of Officers.

### SOCIAL FEATURES

Tuesday, April 20

The Jefferson County Medical Society will give a luncheon to all members of the Association and guests, beginning approximately 12:30 on Tuesday, April 20, at the Tutwiler Hotel.

The Phi Beta Pi alumni banquet will be held at 6:00 P. M., Tuesday, April 20, at the Tutwiler Hotel.

A cordial invitation is extended to all eye, ear, nose and throat physicians of the state to be the guests of the Birmingham Eye, Ear, Nose and Throat Club at a dinner at the Tutwiler Hotel, Tuesday, April 20, 6:30 P. M. Dr. James B. Costen of St. Louis will be guest of honor, and deliver an address on "Diagnosis of Neuralgia and Ear Symptoms Associated with Dysfunction of the Mandibular Joint."

Wednesday, April 21

There will be a luncheon for visiting ladies at noon, Wednesday, the 21st, place to be announced from the floor of the general assembly.

Dr. James S. McLester and Dr. James B. McLester invite the members of the Association and visiting physicians to meet Dr. Charles Gordon Heyd, President of the American Medical Association, at tea at their offices, 930 South 20th Street, at 5:00 P. M., Wednesday, April 21st.

The University of Alabama Medical Alumni Association will hold its annual dinner meeting on Wednesday evening, April 21st, at 6:30 P. M., at the Tutwiler Hotel. Dr. Richard C. Foster, President of the University, will be the speaker of the occasion.



Luncheon for all Emory University alumni will take place on Wednesday, April 21st, at the Tutwiler Hotel. The hour will be announced later.

Immediately following the close of the public meeting, Wednesday evening, April 21st, there will be a reception and dance given by the host society at the Highland Park Country Club. All visitors are invited.

#### SCIENTIFIC EXHIBITS

The Committee on Arrangements and Exhibits has arranged for the following scientific exhibits:

Exhibit on Syphilis—Pine Rooms, Tutwiler.

Exhibit on Tuberculosis—Pine Rooms, Tutwiler.

Exhibit on Cardiac and Cardioresenal Disease—Pine Rooms, Tutwiler.

These exhibits will be open from 12:00 to 2:00 P. M. and from 5:00 P. M. to 8:00 P. M. on Tuesday and Wednesday, April 20 and 21, and by special request at any hour, with movie films on all subjects.

#### ALABAMA PEDIATRIC SOCIETY

The twelfth annual scientific meeting of the Alabama Pediatric Society will be held at the Tutwiler Hotel, Monday, April 19th. Complete details will be published in the Association's general program, to be distributed later.

#### WOMAN'S AUXILIARY

Details of the annual meeting of the Auxiliary to the Association will appear in the general program, to be mailed shortly.

## DEPARTMENT OF PUBLIC HEALTH

### BUREAU OF LABORATORIES

James G. McAlpine, Ph.D., Director

#### TYPHOID VACCINE

The communication which is quoted below brings up a question which has received considerable discussion during the past few years. The letter is as follows:

National Institute of Health  
Washington, D. C.  
March 4, 1937

To All Manufacturers of Typhoid Vaccine:

The recent studies of Colonel Siler and his co-workers, at the Army Medical School, have indicated that a carrier strain of typhoid bacilli designated as No. 58 is probably more suitable than most of the Rawlins strains now in use for preparation of typhoid vaccine. This suitability of the new strain is based entirely upon protection conferred directly upon mice and also by serum of vaccinated persons.

The advisability of changing to No. 58 in the preparation of typhoid vaccine is under consideration and this circular letter is for the information of manufacturers who may be preparing a new batch of concentrates, and pending final decision in the matter.

L. R. Thompson,  
Assistant Surgeon General.  
Director, National Institute of Health.

The Rawlins strain of the typhoid bacillus, which has undoubtedly been employed more extensively in vaccine production than any other, was isolated from a fatal case of enteric fever in 1900. It was used by Wright and his colleagues in some of their early work on typhoid immunization, and in 1904 a British Commission appointed to study this problem selected the Rawlins strain as the one to be employed in the production of typhoid vaccine. Hawley and Simmons<sup>1</sup> state that "when adopted for use in the British Army vaccine in 1904, the Rawlins strain, which was then four years old, was selected because of its relatively low toxicity for guinea pigs and man, its satisfactory stimulation of certain antibodies and because it had at least one characteristic of what has since been designated as a smooth type of *E. typhi*; that is a diffuse growth in broth, and suspensions from agar cultures were not agglutinated by physiological salt solution." Since 1904 the Rawlins strain has been used by the British

1. Hawley, P. R., and Simmons, J. S.: The Effectiveness of Vaccines Used for the Prevention of Typhoid Fever in the United States Army and Navy, *Am. J. Pub. Health* 24: 689-709 (July) '37.

Army. Within the past few years members of the Royal Army Medical Corps, by appropriate cultural methods and mouse passage, have endeavored to obtain subcultures from the Rawlins strain which would have better immunizing qualities.

After careful study of the typhoid vaccination in the German and British Armies, General Russell introduced this procedure in the U. S. Army in 1908. He brought back a subculture of the Rawlins strain from England and this was used for vaccine production. It has been employed by the Army Medical School ever since. In 1934 Hawley and Simmons<sup>1</sup> made the following statement: "*The Rawlins strain may not be the best typhoid vaccine strain; but it is our belief that the Army Medical School substrain is no worse today than it ever was.* Nor has it been proved that the present state of this substrain is not the optimum for the prevention of typhoid fever in man; or that, when the optimum dissociative state has been determined, the Rawlins strain cannot be so maintained."

Since 1917 there has been much controversy concerning the advisability of continuing the use of the Rawlins strain for the production of typhoid vaccine. The argument has settled around two main points. First, because it failed to ferment xylose, many investigators maintained that the Rawlins strain belonged to a relatively small subgroup and was, therefore, not representative. Secondly, following the newer observations on variability of "dissociation," it was found that most of the subcultures of the Rawlins strain used in this country were distinctly not the smooth form but were rough or going in that direction. This work is summarized by Grinnell<sup>2</sup> as follows: "A study of the subcultures of the Rawlins strain of *Bacterium typhosum* used by twelve different laboratories for vaccine production showed that they all differed from recently isolated smooth strains in cultural characteristics, virulence and protective efficiency." Therefore, he recommended the substitution of smooth strains for the old Rawlins culture for vaccine production.

In 1931 the Bureau of Laboratories of the Alabama State Department of Health discarded the Rawlins strain and employed in its place strain 3565 which had been isolated that year from a blood culture. So far as it could be determined the results were excellent. However, in 1935, on the advice of the U. S. Public Health Service its use was discontinued and the Rawlins again employed.

In the meantime the Army Medical School investigators<sup>3</sup> continued their studies. They, in 1936, reported that protective qualities appeared to be linked with virulence; i. e., virulent cultures afford greater protection than avirulent ones. This was further amplified in a later paper<sup>4</sup> in which they suggest there are two important criteria for the selection of a strain of the typhoid organism for the preparation of vaccine. "1. The strain of the organism should be a highly virulent one. 2. The strain should be a highly immunogenic one, as demonstrated by active and passive immunity tests in a selected breed of mice." To quote further from the same paper: "It is our intention to recommend to the Surgeon General of the Army that hereafter typhoid strain No. 58 (which fulfills our mouse experimental requirements) be employed for the preparation of vaccine for administration to Army personnel."

Even though the change from the Rawlins strain to No. 58 is made relatively soon, vaccine from the latter strain will not be available in Alabama this year. It is the custom of the Bureau of Laboratories to make its typhoid vaccine for the forthcoming year during the late fall and early winter. For that reason the supply for 1937 is already at hand.

3. The Laboratory Staff, Army Medical School, Under the Supervision of J. F. Siler: Typhoid Vaccine Studies. Investigation of Virulence and Antigenic Properties of Selected Strains of the Typhoid Organism, Am. J. Pub. Health 26: 219-228 (March) '36.

4. The Laboratory Staff, Army Medical School, Under the Supervision of J. F. Siler: Protective Antibodies in the Blood Serum of Individuals After Immunization with Typhoid Vaccine, Am. J. Pub. Health 27: 142-151 (February) '37.

Syphilis will be the subject of a paper presented to the Association, in annual session, by Dr. E. W. Norris of the U. S. P. H. S.

2. Grinnell, F. B.: A Study of the Dissociation of the Rawlins Strain of *Bacterium Typhosum* with Special Reference to Its Use in the Production of Anti-Typhoid Vaccine, J. Exp. Med. 56: 907-918 (Dec.) '32.



## BUREAU OF HYGIENE AND NURSING

B. F. Austin, M. D., Director

### THE DIAGNOSIS AND TREATMENT OF URINARY INFECTION IN CHILDREN

Pyelitis is one of the most common conditions that the practicing physician has to contend with in his pediatric practice and unfortunately, one which is extremely puzzling and difficult to diagnose. Fever, frequently of the septic type, and chills, which are the two outstanding symptoms, are not as a rule accompanied by localizing signs, so that in order to arrive at a correct diagnosis, the physician must make a complete physical examination, carefully ruling out conditions such as otitis media, pneumonia, sinusitis, septic sore throat and the acute contagious diseases; and, what is most important, he must examine the urine, for confirmation of diagnosis depends on finding pus cells in the urine. It is here that one might easily be led astray if he is not aware of the fact that the urine very frequently shows no pus at the height of the attack. It is characteristic of pyelitis that patients having chills and fever are not discharging much pus in the urine. This indicates that for the time inflammation or other obstruction has temporarily prevented flow of urine and pus from the involved pelvis. As soon as adequate drainage is established, the temperature usually drops to normal, or near normal, and there are no signs or symptoms of disease except that the urine is now loaded with pus cells.

Even when the urinary tract is found to be a seat of the infection one cannot determine without careful study whether or not there is an accompanying nephritis or cystitis so that it would seem better to employ the term urinary tract infection until the exact nature of the disease is revealed.

Dr. Henry Helmholtz of the Mayo Clinic stresses the importance of carefully studying all cases of urinary tract infection before instituting any form of treatment in order to rule out causative and complicating factors such as kidney stones, ureteral kinks, and various anatomic anomalies.

Failure to recognize and remove these sources of obstruction to the normal flow, he believes, accounts for many recurrences of albumen and pus in the urine following

apparently successful therapy with various medicaments.

When one fails to obtain a complete objective cure, i. e., pus free, bacteria free urine, resort should be had first to a kidney function test, then to a flat x-ray plate of the kidneys and bladder filled with a 10% argyrol solution to determine the presence of diverticula, reflux and spina bifida occulta. Next, a skiagram is obtained by intravenous urography. Following this, cystoscopy with bilateral ureteral catheterization may be needed during the administration of phenolsulphonphthalein to determine the excretory powers of each kidney and the presence or absence of any obstruction to the free flow of urine. Depending on the nature of the findings after such an exhaustive study, the need for and the nature of any surgical procedures will be revealed. These, however, should be undertaken with considerable reluctance, especially in children, because the results are not encouraging and the mortality rate is high.

With the removal of obstructive factors the ultimate aim in treatment is essentially the same as for that of uncomplicated infection, namely, to render the urine pus free, and if possible, sterile. Fluids should be forced until a urinary output of one-half to two liters per day has been obtained. If the patient cannot take fluids by mouth, parenteral routes of administration should be utilized. The colon bacillus apparently thrives in an acid urine. For this reason it has become routine practice with many physicians to alkalinize the urine in cases of colon bacillus pyelitis.

Sodium bicarbonate, potassium citrate, and sodium citrate are commonly used for this purpose. If the urine is alkaline when first examined, it may be advisable to give medication to change its reaction to acid. For this purpose sodium acid phosphate in five to ten grain doses administered every two to four hours in sweetened water may be used. Systematic alternation between acid and alkaline urinary reaction is of distinct value; by this method the patient is given acid producing medication for five to seven days and then changed to alkalis for a similar period.

Urinary antiseptics are used to some extent in the treatment of pyelitis in children but they do not assume such an important

place as in the management of urinary infections in adults. Hexamethylenamine may be given in doses of one to five grains three or four times a day, depending on age. The urine should be kept acid in reaction while this drug is given.

In 1932 Helmholtz reported successful use of ketogenic diets in the treatment of pyelitis. The ketogenic diet was constructed so as to limit carbohydrates and alkaline ash foods; it contains more protein and fat than can be completely metabolized. This sort of diet causes an accumulation in the blood (and subsequent excretion in the urine) of considerable amounts of ketone bodies. Ketogenic diets consist for the most part of cream, eggs, milk, butter and bacon; they become very unpalatable after a few days, and their use is attended by considerable difficulty and some danger, especially in children. It has recently been conclusively demonstrated by Rosenheim that mandelic acid when given by mouth is excreted unchanged in the urine and exerts bactericidal effects equal to those of beta-hydroxybutyric acid (which is excreted in the urine when the patient is on a ketogenic diet). More recently Newns and Wilson have reported the use of mandelic acid in the form of ammonium mandelate in the treatment of pyelitis. In every case the urine was rapidly rendered sterile following this form of therapy. However, nine of these thirty-six cases suffered relapses following therapy so that the authors ended their article with the following conclusion: "It will be necessary to follow up large numbers of cases for a considerable period before one can say whether mandelic acid will permanently cure pyelitis."

It is generally agreed that mandelic acid therapy should be reserved for subacute and chronic pyelitis. Most urologists advise that acute pyelitis can be treated conservatively by bed rest, forcing of fluids, and mildly alkalinizing drugs. J. J. R.

## BUREAU OF PREVENTABLE DISEASES

D. G. Gill, M. D., Director

### TECHNIC FOR OBTAINING A DARKFIELD SPECIMEN

The first two weeks of the primary lesion is the best time to secure the most positives. Negative results do not completely

eliminate syphilis from the diagnosis but the sooner after the appearance of the chancre the examination is made the more significant are the negative findings. In suspicious lesions three or four specimens should be obtained before a negative report is established. But all negative examinations should be followed by blood Wassermann follow-up.

The lesions selected for darkfield study should be as young as possible, as nearly untreated as possible, and as clean and free from detritus and secondary infection as possible.

The chancre should be cleansed thoroughly with a normal salt solution and dried. Then pinch the lesion fairly firmly between the left thumb and index finger and rub off the exudate with dry gauze until the base is clean and bleeds slightly when the pressure is released. (If the lesion is dry remove the crust with a scalpel and scrape lightly.) Release and make pressure (as described above) on the lesion several times. After gently wiping off the blood clear serum should exude. If the serum still appears bloody then pressure should be applied again for a few minutes. As the clear drop of serum exudes apply the capillary tube at a *slight* slant from perpendicular until the fluid has filled the tube. Then dip each end of the capillary pipette into the beeswax to seal the ends. Place in the Wassermann tube and mail.

Since early lesions are highly infectious it is a well worthwhile precaution for the physician to don rubber gloves before handling the chancre. Thumbs and index fingers are just as vulnerable to the spirocheta pallida as the genital tract.

It is the plan within the next few months to have three state laboratories doing darkfield examinations. Detailed description of the mailing containers will be given through the columns of this Journal.

## BUREAU OF SANITATION

G. H. Hazlehurst, Director

### ORGANIZED MUNICIPAL SANITATION

With the passage of the S-247 Kelly Act by the regular session of the 1935 Legislature, the legal obstacles which previously had jeopardized a complete municipal sanitation program on an organized basis were apparently removed.



The act, amending Section 2051 of the Code, is as follows:

Section 2051. Privies, Water Closets, Septic Tanks and Connections with Sewerage. To regulate privies, water closets, and septic tanks, and the construction thereof, and to compel the installation of same, and the connection of such water closets with such septic tanks, or with the sewerage system of the city or town; and, in case of failure to install or connect after reasonable notice, then the city or town may install proper privies, water closets, or septic tanks, as it deems advisable, and connect such water closets with such septic tanks or with the sewerage system of the city or town, the expense of same to be assessed against the property, and the cost thereof to be a lien upon the property in favor of the city or town, superior to all other liens, to be collected as other debts are collected or liens enforced. When privies, water closets, or septic tanks are installed and connections made by the city or town under the provisions of this section, the Mayor of such city or town shall prepare a statement, in writing, setting forth the name of the owner, and a description of the property upon which the improvements have been made, together with the cost of the installation of such privies, water closets, or septic tanks, and sanitary connections, which must be signed by the mayor in his official capacity and filed with the Probate Judge in the county in which such property is situated, for record in the mortgage records of the county. The filing of such statement shall operate as notice of such lien from the date of its filing.

Since economics play a large part in the growth, development, and prosperity of a municipality, it is of major importance that a thorough economic study of the property be made before attempting an organized municipal sanitation program. There are certain decisions to be made by the municipal authorities as to what type of sanitation is to be installed. For example, should property of the lower economic group, which has water under pressure and sewerage system available, be required to have a sewer connection or a pit privy?

After the municipalities have adopted certain policies as to the type of sanitation to be installed, the method of installation and construction should be considered. For standard construction and the greatest return on the original investment the work should be let on a contract basis. The cost per unit would be considerably less where mass production is used. In addition, better workmanship with equal material quality would result.

By utilizing the powers of the Kelly Act the municipalities should be able to place the sanitation program on a self-liquidating

basis. With this method the property owners would be given the advantage of making deferred payment, a privilege which a restricted number have been enjoying on street paving programs and other municipal projects. With this type of financing property owners in the various economic groups could financially afford sanitation.

Unfortunately in the past the problem of constructing and maintaining a sanitary system for the various municipalities of the state consisting of a capital outlay of several millions of dollars, with police powers alone, has been shifted to the health authorities. If municipalities had relied on police powers alone instead of deferred payments, we would not enjoy paved streets, sewerage systems and other municipal projects which the average person considers as municipal responsibilities. If complete sanitation is obtained and public health protection from human body wastes is kept at a maximum the municipal and health authorities should both shoulder the responsibility. The ground work has been laid. The municipality should assume the responsibility of complete sanitation. The health department should assist the municipalities in formulating the plans and give technical supervision to the program.

J. C. C.

## BUREAU OF VITAL STATISTICS

Leonard V. Phelps, S. B. in P. H., Director

### PROVISIONAL SUMMARY OF BIRTHS AND DEATHS, ALABAMA, 1936

On the basis of provisional figures of births and deaths, the health of the state in 1936 appears to have been poorer than it was in 1935.

#### *Births:*

In 1936 there were 61,072 live births, a reduction of 1,383 compared with the number recorded in the preceding year. The provisional birth rate (21.4) was the lowest since Alabama was admitted to the U. S. Birth Registration Area in 1927.

#### *Stillbirths:*

Stillbirths numbered 2,639, a reduction of 365 below the 1935 figure. The stillbirth rate was 41.4 per 1,000 total births (inclusive of stillbirths), a reduction of 4.5 per 1,000 total births, compared to the rate in the preceding year.

Deaths:

There were 30,961 deaths. The death rate (10.9 per 1,000 population) exceeded that recorded in any year of the preceding quinquennium (1931-1935).

Infant Mortality:

Deaths of infants under one year numbered 4,002, representing an increase of almost 100 more (96) than in 1935. The infant mortality rate (65.5) also increased above the 1935 figure, equalling that recorded in 1933.

Deaths From Childhood Diseases:

The picture presented in 1936 was, in general, a favorable one. New low rates were recorded for whooping cough (2.9 per 100,000 population) and diphtheria (4.1). In the latter case the reduction was comparatively slight, however. The death rate from measles (0.6) has been lower only once in the preceding decade. On the other side of the picture, the rate from diarrhea and enteritis (under two years), 18.0, increased. Owing to the epidemic of acute anterior poliomyelitis, there were 40 deaths, which was more than twice the average annual figure.

Deaths From Other Important Causes:

The picture presented by this group of causes was very unfavorable. A new low rate (2.8 per 100,000 population) was recorded from typhoid and paratyphoid fever. The rate from homicide (21.1) was slightly less than the rate in 1935. An increase in the death rate from tuberculosis (all forms), 64.2, halted the downward trend in mortality from this disease; the same was true of the rate from all puerperal causes, 66.9 per 10,000 total births. The upward trend in the rate from cancer (56.1) was stopped. New high rates were recorded from the following causes: Heart disease (148.0), diabetes (12.4), and cerebral hemorrhage (76.6); that from bronchitis (2.8), pneumonia, all forms, (94.7) and syphilis (16.5), the highest in eight years; influenza (51.4), in seven years; appendicitis (11.1), suicide (7.8) and nephritis (82.1), in four years. The rate from malaria equalled its 1935 figure (11.6).

CURRENT STATISTICS  
\*PREVALENCE OF COMMUNICABLE  
DISEASES IN ALABAMA  
1937

|                       | Jan. | Feb. | Estimated<br>Expectancy<br>March |
|-----------------------|------|------|----------------------------------|
| Typhoid               | 16   | 9    | 15                               |
| Typhus                | 18   | 8    | 8                                |
| Malaria               | 129  | 100  | 62                               |
| Smallpox              | 2    | 6    | 18                               |
| Measles               | 15   | 38   | 490                              |
| Scarlet fever         | 74   | 60   | 96                               |
| Whooping cough        | 118  | 121  | 111                              |
| Diphtheria            | 105  | 74   | 111                              |
| Influenza             | 1627 | 4233 | 898                              |
| Mumps                 | 326  | 186  | 101                              |
| Poliomyelitis         | 2    | 3    | 4                                |
| Enecephalitis         | 1    | 4    | 3                                |
| Chickenpox            | 438  | 143  | 223                              |
| Tetanus               | 4    | 2    | 3                                |
| Tuberculosis          | 235  | 236  | 308                              |
| Pellagra              | 10   | 11   | 14                               |
| Meningitis            | 19   | 18   | 6                                |
| Pneumonia             | 645  | 665  | 534                              |
| Syphilis              | 976  | 1036 | 135                              |
| Chancroid             | 6    | 5    | 5                                |
| Gonorrhea             | 435  | 327  | 137                              |
| Ophthalmia neonatorum | 1    | 0    | 1                                |
| Trachoma              | 1    | 0    | 1                                |
| Tularemia             | 2    | 2    | 3                                |
| Undulant fever        | 3    | 2    | 1                                |
| Dengue                | 1    | 0    | 0                                |
| Amebic dysentery      | 1    | 1    | 0                                |
| Rabies- Human cases   | 0    | 0    | 0                                |
| Positive animal heads | 78   | 78   |                                  |

\*As reported by physicians and including deaths not reported as cases.

The Estimated Expectancy represents the median incidence of the past nine years. With the venereal diseases, clinic cases were not included prior to 1936.

Book Abstracts and Reviews

Rural Health Practice: By Harry S. Mustard, M. D., Associate Professor of Public Health Administration, School of Hygiene and Public Health; Lecturer in Preventive Medicine and Public Health, School of Medicine, The Johns Hopkins University. 620 pages with 31 tables and 28 figures. Published by The Commonwealth Fund, New York. Cloth, \$4.00.

The author makes available to the public health worker a comprehensive volume in this book. The personnel of the state and county health departments of Alabama are quite familiar with the writings of Dr. Mustard. Rural Health Practice is his masterpiece which far surpasses all of his previous publications as a guide to health workers.

The ensuing paragraph taken from the foreword to the text is typical. "There is difference of opinion on many of the subjects discussed in the text. In dealing with such matters an effort has been made to present both sides of the question, and to advise what seems a sensible course to pursue. However, the writer has found it impossible to avoid taking sides in the argument, and undoubtedly has in many instances too strongly emphasized the importance of this or the non-importance of that, or has overstressed the virtues of one procedure to the detriment of another which time will prove to be just as good or better than the one recommended. As mentioned in the body of the text, there is a certain magic in print, and the reader is warned against this: merely because the writer has succeeded in getting an opinion into a book does not necessarily guarantee that it is infallible."

Dr. Mustard has gleaned from his varied experiences of twenty years in public health, largely in the South, a wealth of valuable material. The keen observation and reflection of his alert, ana-

ANNUAL MEETING OF THE  
ASSOCIATION  
BIRMINGHAM, APRIL 20-22



lytical mind are forcefully set forth in the text. The statement that follows depicts the approach he makes to the wide range of information, suggestions and discussion included. "The writer's main claim to an authoritative position in rural health practice is that he has already made most of the mistakes which it is possible for a rural health officer to make."

The arrangement of the book is excellent. It contains the following items: (1) Contents, (2) tables, and (3) figures in the forepart and an index in the back. This makes the volume a handy reference manual for the busy health worker. While there are some teachings contained in *Rural Health Practice* with which we cannot thoroughly agree, it is a publication worthy to be placed for study in every county health unit. B. F. A.

---

**Nursing As A Profession.** By Esther Lucile Brown, Department of Statistics, Russell Sage Foundation. E. L. Hildreth and Company, Brattleboro, Vermont, 1936. Price \$0.75.

The Russell Sage Foundation has made great contributions for the improvement of social and living conditions in the United States by contributing funds for demonstrations in activities not adequately supplied by official agencies. This book, *Nursing as a Profession*, a research in nursing, is something that has been needed for a long time, a handbook for non-nurses to interpret the trend in the profession. It is in a most concise form and yet covers the important facts that have been compiled in the last fifty years regarding nursing education. It is especially adapted for lay committee members of public health nursing organizations and any nursing committees. As a reference book, it contains much valuable information regarding the functions and the accomplishments of the four national nursing organizations; it carries a complete bibliography for further reading on the subjects covered; and gives a list of schools that offer approved postgraduate courses for public health nursing. In many ways, this little volume should serve a most useful purpose.

B. F. A.

---

**An Introduction To Medical Science.** By William Boyd, M. D., M. R. C. P. (Edin.), F. R. C. P. (Lond.), Dipl. Psych., F. R. S. (Canada). Professor of Pathology in the University of Manitoba; Pathologist to the Winnipeg General Hospital, Winnipeg, Canada. Illustrated with 108 engravings. Lea and Febiger, Philadelphia. 307 pages. Cloth.

Dr. Boyd tells us in his title and reminds us in his preface that this relatively short volume makes no pretensions to exhaustiveness—that it is merely an introduction to medicine's manifold aspects. Yet even the briefest sort of glance at the table of contents discloses to the reader or reviewer the wide field it covers and the wealth of material it contains. Indeed we find here about as wide a variety of medical information as it is possible to prepare and present between the crowded covers of a book slightly more than 300 pages.

Under Part I, "Some General Principles," we have chapters on "The Nature and Causes of Disease"; "Disturbance of the Blood Flow"; "Inflammation, Immunity, and Allergy"; "Some Bacterial Infections"; "Some Animal Parasites" and "Tumors." In Part II, "The Organs and Their Diseases," we see discussions of diseases of the heart,

lungs, upper and lower digestive tracts, the liver and gallbladder, the pancreas, the bones and joints, and the teeth. The urinary system, the female reproductive system, the breast, the ductless glands, and the blood and lymphatic systems are also treated in separate chapters. And finally there is Part III, headed "Practical Applications." It has to do with such subjects as "The Prevention of Disease" and "The Nurse and the Laboratory."

Each chapter is carefully subdivided, of course. In the chapter on "Some Bacterial Infections," for instance, after a page reminding us that "bacteria are the greatest cause of disease" and discussing the sequence of infection and illness, we find brief but thorough-going discussions of the following: (a) staphylococcal infections; (b) streptococcal infections; (c) rheumatic fever; (d) tuberculosis; (e) syphilis; (f) gonorrhea; (g) actinomycosis; (h) undulant fever; (i) virus diseases.

Dr. Boyd has prepared a thoughtful, scholarly work. And, by means of a good index, he has made the information he has gathered on any particular phase of modern medicine instantly available to any busy practitioner who has this volume in his library. G.

---

**Operative Surgery, Volumes I and II.** By J. Shelton Horsley, M. D., LL.D., F. A. C. S., Attending Surgeon, St. Elizabeth's Hospital, Richmond, Virginia; and Isaac A. Bigger, M. D., Professor of Surgery, Medical College of Virginia, Surgeon-in-Chief, Medical College of Virginia Hospital, Richmond, Virginia. With contributions by C. C. Coleman, M. D., F. A. C. S., Professor of Neurological Surgery, Medical College of Virginia, John S. Horsley, Jr., M. D., Assistant Professor of Surgery, Medical College of Virginia; Attending Surgeon, St. Elizabeth's Hospital, Richmond, Virginia, Austin I. Dodson, M. D., F. A. C. S., Professor of Urology, Medical College of Virginia; Urologist to St. Elizabeth's Hospital, Richmond, Virginia, and Donald M. Faulkner, M. D., Associate Orthopedist, Medical College of Virginia. Illustrated by Miss Helen Lorraine. 1,387 pages with 1,259 illustrations. Fourth edition. St. Louis, Mo. C. V. Mosby Company, publishers. Cloth, \$15.00 (2 volumes).

The fourth edition of *Operative Surgery* by Horsley and Bigger consists of two volumes. Besides the authors, there are four other contributors, namely, C. C. Coleman, John S. Horsley, Jr., Austin I. Dodson and Donald M. Faulkner. Doctor Horsley is the largest contributor. The first volume consists of general principles and miscellaneous subjects such as operations for repair of nerves, skin grafting, operations on the neck, thyroid gland and so forth. Thoracic surgery is covered with a fair degree of detail by Doctor Bigger. Orthopedic surgery along with the subject of fractures, particularly operative treatment, is covered by Doctor Donald M. Faulkner. It is interesting to note that there is evident a definite antagonism to open reduction of fractures except in very few, well selected cases.

There is an excellent chapter by Doctor Horsley on continuous intravenous injections and he strikes a note of warning against the use of the Murphy drip apparatus for intravenous therapy because of the distinct possibility of air embolism. This chapter discusses in some detail the indications for this type of therapy.

The subject of surgical drainage is excellently covered in a separate chapter. Surgery of blood vessels and ligation of blood vessels are two important subjects well covered. The subject of plastic surgery is treated by Doctor Horsley, Jr., and the illustrations in this field are rather valuable. In fact, the illustrations generally are well presented.

The chapters on the neck and thyroid and mammary glands by Doctor Bigger could be enlarged profitably.

The second volume covers such subjects as hernia, surgery of the heart, pericardium and mediastinum. These subjects are covered by Doctor Bigger and are well presented and valuable.

Doctor Horsley may be said truly to attain his usual high peak when he writes on surgery of the abdomen. This section composes a large part of the second volume and is necessarily partly a reproduction of Doctor Horsley's book entitled, "Surgery of the Stomach and Duodenum." This, however, does not in any way detract from the value of this section. Some of the subjects to be found in this section which are not touched upon in Doctor Horsley's book are surgery of the gallbladder, appendicitis and surgery of the large intestine. These are all of distinct value as treated by Doctor Horsley.

Urologic surgery is covered in some detail by Doctor Austin Dodson. There are some excellent illustrations of plastic operations for congenital deformities of the external genitalia.

The subject of head injuries is covered by Doctor C. C. Coleman. In addition Doctor Coleman discusses such subjects as hydrocephalus and brain tumors. Emphasis is placed on the diagnostic problems related to brain tumors. It would seem that the operative portion in this particular section is covered in perhaps more detail than is necessary in a book on general surgery.

The two volumes are valuable additions to the literature of surgery and would appear to be very usable from the point of view of operative technique and to some extent in the diagnostic field.

J. L. B.

**The Diseases of Infants and Children.** Second Edition. By J. P. Crozer Griffith, M. D., Ph.D., Emeritus Professor of Pediatrics in the University of Pennsylvania; Consulting Physician to the Children's Hospital, Philadelphia; Consulting Physician to St. Christopher's Hospital for Children; Consulting Pediatricist to the Woman's, the Jewish and the Misericordia Hospitals, etc.; Corresponding Member of the Societe de Pediatrie de Paris; and A. Graeme Mitchell, M. D., B. K. Rachford Professor of Pediatrics, College of Medicine, University of Cincinnati; Medical Director and Chief of Staff of the Children's Hospital of Cincinnati; Director of the Children's Hospital Research Foundation; Director of Pediatric and Contagious Services in the Cincinnati General Hospital. Second edition, Revised and Reset. 1,153 pages with 293 illustrations. Philadelphia and London: W. B. Saunders Company, 1937. Cloth, \$10.00 net.

The second edition of Griffith and Mitchell is far superior to the first. This book has always been one of the most authoritative and complete of textbooks, and it is now modified to meet the needs of the medical student, general practitioner or pediatricist. The revision in three types of print is a real aid to the reader.

Preventive measures have been emphasized; the chapter on tuberculosis has been carefully rewritten; the entire matter of artificial feeding has been beautifully simplified although the old ideas of caloric and percentage feeding have been retained. The section on diabetes mellitus is so well detailed that the management of the usual case could be carried out by one not particularly interested or experienced in the treatment of this disease.

The references are brought well up to date, as late as 1936, and are collected at the end of each chapter.

R. P.

**The Social Component in Medical Care.** A Study of 100 Cases from the Presbyterian Hospital in the City of New York. By Janet Thornton, Director of Social Service Department, Presbyterian Hospital, in collaboration with Marjorie Strauss Knauth, Assistant Physician, Presbyterian Hospital. Columbia University Press, Columbia University, New York City. 1937. 411 pages, cloth. Price \$3.00 net.

For many years the medical profession has been aware of the fact that social conditions, such as economic status, domestic relations, housing, food supply, sanitary facilities and working conditions play a large part in modifying the course of disease. The Presbyterian Hospital presents a report of 100 cases treated by their medical staff and thoroughly studied by their very well organized social service department. With much patience and with great understanding, the social service department has attempted to ferret out those environmental factors which have prevented full cooperation of patients and physicians and thus hindered recovery. Cardiacs required much attention since it was necessary for most of them to readjust their lives to conform to their limited work capacity. Such simple things as residence on the second or third floor could influence the outcome of their illness. An important factor in prolonging illness was the undue effort necessary to make a living for the patient or his family. This was particularly true in the case of women with children who had to keep house and earn a living as well. An unwillingness on the part of the patients to accept unnecessary restrictions was one unfavorable factor which was frequently overcome by the friendly advice of the social service worker.

The solution of the various difficulties encountered in this study required a great deal of tact and a considerable expenditure of both time and money. In a large hospital with a well financed social service department, such care is possible but the individual physician who treats his patient medically and at the same time must persuade him of the wisdom of his advice and must aid him in following out the necessary suggestions of treatment must possess an almost instinctive knowledge of human beings and their problems if he is to succeed in accomplishing what the combined medical and social service staffs of the Presbyterian Hospital accomplished in this group of cases. The reviewer feels that the general practitioner could add to this study many observations of practical value while on the other hand the same physician might learn from reading the book how to handle some of his problems more efficiently than he has in the past.

C. K. W.

**Carcinoma of the Female Genital Organs.** By M. C. Malinowsky and E. Quater. Translated from the Russian by A. S. Schwartzmann, A. B., M. D., Bruce Humphries, Inc., publishers, Boston. 1937. Cloth, 255 pages. Price \$5.00 net.

The authors of this monograph have succeeded in giving a complete picture of malignancy of the female reproductive tract including the mammary gland. The discussion of etiology is by no means unusual nor is the chapter on cancer of the breast comparable to many of the works by American authors. On the other hand, in the description of cancer of the cervix and uterus and of metastatic cancer of the ovary, the authors have presented a very clear picture. The success of their presentation is due to the fact that they have traced the growth and extension of these cancers from the earliest



recognizable stages to the hopeless stage of extensive local infiltration and generalized metastases. They have discussed the various types of treatment including surgery and radiation and such palliative measures as cauterization, isonin blue injections and calcium chloride injected into the growth and intravenously. Despite a certain awkwardness due to literal translation the wealth of information contained in the volume commend it to the attention of the gynecologist.

C. K. W.

---

## Truth About Medicines

### PROPAGANDA FOR REFORM

**Dextrose—Its Place in the Diet of Normal Adults.**—In recent years chemically pure dextrose, usually prepared from corn starch, has become available and is being promoted largely to replace part of the sucrose of the diet. Dextrose occurs naturally in many ordinary foods, in honey, in grape juice and other fruit juices, and in maple syrup. Dextrose is obtained as one of the products of the digestion of cane sugar and milk sugar, and it is the end product of the digestion of starches and of maltose. The wide occurrence of dextrose in foods, the vast literature of biochemical and physiologic investigations of this substance, and the claims made in advertising have led the Council on Foods to consider it desirable to publish a brief report on the significance of dextrose in the diet of the normal adult. On the basis of available evidence the Council has summarized the claims which in its opinion are justified for dextrose: The sweetness of dextrose is about 75 per cent of that of sucrose. Dextrose should not be termed the physiologic sugar, for such designation permits the connotation that dextrose is a preferred food, which is not compatible with known facts. It is incorrect to state that it is instantly absorbed. Dextrose is well utilized as a food, but it possesses no practical advantages over many other carbohydrates in combating ketosis produced by either a high fat diet or by fasting, nor does dextrose itself have unique advantages when administered by mouth to prevent or relieve fatigue or to maintain muscular efficiency to a high degree. Dextrose is produced by the digestion of the most important dietary carbohydrate, starch. The evidence which indicates any superiority, under normal conditions, of dextrose ingested as the free

sugar over dextrose ingested as the polysaccharide starch is not convincing. (J. A. M. A., Feb. 13, 1937, p. 556.)

**Insulin Shock Treatment for Schizophrenia.**—The amazing results already reported in some cases in which the insulin shock treatment has been applied in schizophrenia have resulted naturally in a certain amount of premature enthusiasm in relationship to the use of the method. It has been widely exploited in the press with the statement that it constitutes a cure for what has formerly been considered an incurable disease. As a result, the Committee on Public Education of the American Psychiatric Association has considered it worth while to issue a public statement on the present status of this new method. The statement says, in part: "It is hoped, and may prove to be a fact, that the so-called insulin shock treatment for dementia praecox will find a useful place among the forms of treatment for dementia praecox, but its exact value has yet to be determined and it can be definitely stated that it is not a specific, nor by any means a cure for all cases of dementia praecox. . . . It is, however, at the present time, receiving careful study in the New York and Massachusetts State Hospital systems, Bellevue Hospital, New York, and other scientific centers, but it should not be undertaken except by those adequately trained to meet the dangers connected with the treatment." (J. A. M. A., Feb. 13, 1937, p. 560.)

**Protamine and Insulin Preparations.**—From its introduction fourteen years ago, insulin underwent relatively little modification until Hagedorn and others of Denmark showed that the blood-sugar-lowering action of insulin was prolonged when it was combined with protamine. Subsequently, Scott and Fisher, working at the University of Toronto, found that the addition of a zinc salt to a protamine and insulin mixture enhanced the prolongation effect of insulin in diabetic patients. Various investigators in collaboration with the University of Toronto group have aided in the development of a pharmaceutically improved product of insulin, modified by the presence of protamine and zinc, which may be dispensed in a single vial. This product has now been designated "Protamine Zinc Insulin." Protamine Zinc Insulin does not replace insulin

(unmodified) in all cases or under all circumstances. Protamine Zinc Insulin may be used alone or used concurrently with the administration of unmodified insulin; or in some cases unmodified insulin may be used to advantage without employing Protamine Zinc Insulin. For the sake of consistency in nomenclature and to avoid confusion in medical literature, physicians and investigators should bear in mind distinctions between the following terms: Insulin as a term for the unmodified insulin of commerce. Protamine Insulin as a product to which no zinc salt has been added. Protamine Zinc Insulin for the product modified by the addition of protamine and a zinc salt, with other substances. (J. A. M. A., Feb. 20, 1937, p. 644.)

Status of Catgut Sutures.—At the request of the Council on Pharmacy and Chemistry Mr. John H. Brewer has made a special laboratory investigation of commercial catgut sutures. The report of Mr. Brewer was adopted by the Council and authorized for publication in *The Journal*. The present survey was undertaken with two objects in view: (1) to study critically the technic which has been heretofore employed in testing the sterility of catgut sutures, to modify this technic as might seem desirable and to describe it in such a manner that it might be of use to manufacturers of sutures and others interested in the control of these products; (2) to determine the status of sterility of sutures now available on the American market and especially of those recently manufactured in comparison with those on the market some years ago. In reviewing the literature on the sterility of catgut sutures, it was found that before 1929 there was no recognized technic for testing sutures. Bulloch, Lampitt and Bushill in 1929 introduced a technic which was far superior to any that had been suggested previously. In 1931 Meleney and Chatfield published what they considered an effective technic for testing the sterility of catgut. At present, all of the manufacturers who have been consulted employ the Meleney and Chatfield technic or modifications of it, the chief differences being in the use of additional controls or in the use of a different neutralizing agent. Clock has published several papers in which he suggests certain modifications which

seem to be of noteworthy value. Sutures examined were obtained from the manufacturers, bought in the open market or from hospital supply rooms. A few of the sutures examined were known to have been in stock for more than ten years. These are of special interest in that some of them were found non-sterile, although they were stored in heavily laden mercuric tubing fluid. Not all the brands of sutures to be found on the American market were examined, but all of those recently advertised in the leading medical and surgical journals were given thorough study. The general procedure for this survey was first, to test all the sutures according to the technic of Meleney and Chatfield; then to test the same type of sutures using the additional controls and neutralizing agents suggested by Clock, except in the instance of sutures in which copper was used. Of the fourteen brands tested in the present survey, sutures of six firms were found not sterile. Four of the fourteen firms no longer manufacture sutures. When recent products of the other firms were examined, only one of the firms was found to have nonsterile sutures among those examined. There may be still on the market some old nonsterile sutures from some of these manufacturers, but sutures made by these companies since the advent of the Meleney and Chatfield technic have been found sterile. If only sutures of recent manufacture are considered, the percentage of firms placing nonsterile products on the market drops from 43 to 12.5, indicating that fewer nonsterile sutures are now being manufactured. It appears that the results of Meleney and Chatfield and of Clock may have had considerable influence in improving the quality of sutures now being manufactured, so far as sterility is concerned. In view of this report the Council desires to issue a warning against the use of so-called chemically sterilized sutures; in the opinion of the Council it is better to use only heat sterilized sutures until more reliable chemical processes have been devised. The Council believes that all manufacturers should place on their labels a date of manufacture and that physicians should use those sutures which bear a date more recent than October 8, 1936, at which time the report was submitted to manufacturers. (J. A. M. A., Feb. 27, 1937, p. 722.)



# THE JOURNAL

OF

## The Medical Association of The State of Alabama

Published Under the Auspices of the Board of Censors

Vol. 6, No. 11

Montgomery, Alabama

May 1937

### THE BRONCHOSCOPIC MANAGEMENT OF PULMONARY ABSCESS\*

By  
PORTER P. VINSON, M. D.  
Richmond, Virginia

The more widespread employment of local anesthesia in operations on the nose and throat has reduced the number of cases of pulmonary abscess which formerly resulted from such operations when general anesthesia, particularly ether, was administered. In spite of this reduction the number of patients with abscess of the lung due to other causes has apparently increased and the total incidence of the disease has not been altered by improvement in operative methods.

The seriousness of pulmonary abscess is well recognized, but prognosis depends on the criteria employed in diagnosis. If all of the different types of pulmonary suppuration are diagnosed and treated as pulmonary abscess, an evaluation of the results from any method of treatment will be difficult.

The slow resolution of pneumonia produces changes in the lung which may justify the diagnosis of pulmonary abscess and yet the majority of lesions of this character will disappear with the usual expectant treatment. The formation of empyema with rupture into a bronchus and partial drainage through the air passages is frequently diagnosed as pulmonary abscess, but this lesion usually requires resection of ribs and external drainage before healing occurs.

The formation of an abscess beneath the diaphragm with rupture into a bronchus may be diagnosed as pulmonary abscess, although one could scarcely expect treatment for the pulmonary infection associated with this disease to result in eradication of the underlying cause. Even when infection is

limited to the pulmonary tissue the lesions vary greatly and prognosis depends on the character of the disease.

Chronic suppurative pulmonary infection frequently begins in childhood following pertussis or measles, is located in both lungs, and usually is associated with dilatation of the bronchi. This disease is often classified erroneously as pulmonary abscess, especially when interference with drainage of secretion from the bronchi is present.

An unrecognized foreign body in the air passages may frequently be responsible for a suppurative process which is mistaken for pulmonary abscess and in any case of suppurative disease of the lung such a possibility must be considered.

During the past ten years the incidence of primary bronchial carcinoma has increased rapidly. Since many of these growths cause interference with normal drainage from the tracheobronchial tree, infection distal to the obstruction frequently ensues and produces symptoms and roentgenoscopic findings which are indistinguishable from pulmonary abscess.

Although bronchoscopy is essential in the differential diagnosis of the lesions which have been enumerated and is indispensable in the treatment of many of them, the purpose of this paper is to direct attention to the value of bronchoscopy in the management of primary pulmonary abscess which may be of two types. The first is that type of abscess which occurs following the aspiration of material into the lung, resulting in local infection and stenosis of a bronchus with the formation of an abscess beyond the area of bronchial disease. The second variety of abscess results from emboli which produce areas of necrosis in the pulmonary tissue. The emboli may be small and may be absorbed gradually without draining into a bronchus, in which case one may assume that, if infected material were present in the vessel which was occluded, it

\*Read before the Association, in annual session, Birmingham, April 20, 1937.

was small in amount or lacking in virulence. Many emboli occurring in the lung are associated with infection, and large areas of pulmonary tissue may be destroyed with the formation of an abscess which later ruptures into a bronchus.

The best results from bronchoscopic drainage are obtained in the cases which are associated with bronchial stricture. Aspiration of an abscess in the absence of bronchial stricture may be followed by complete cure but when a stricture is present, the results usually are spectacular.

It must be emphasized that the stricture which may be difficult to visualize must be dilated thoroughly in order that drainage of the abscess may be obtained. One dilatation usually is sufficient to cure an abscess, but aspiration of secretion from above a stricture without dilatation of the stenotic bronchus will not prove beneficial. If a definite stricture has been dilated on three occasions without benefit, the lesion probably is malignant, tuberculous, or the result of an unrecognized foreign body. Usually one bronchus only communicates with an abscess and when a single bronchial stricture exuding pus has been dilated, one may conclude that this is adequate treatment. Symptomatic improvement may be delayed for a few days following aspiration of an abscess or it may be immediate with rapid resolution of the cavity or area of infiltration.

Very little can be accomplished by bronchoscopy in a patient who has an abscess of embolic origin until rupture into a bronchus has occurred. After the rupture, however, bronchoscopy should be performed with aspiration of the infected area of the lung. At times there is very little evidence of bronchial stricture and unless an obstruction can be seen, one is always in doubt as to whether or not unidentified stenosis is present. If beneficial results are not obtained by bronchoscopic operation in a case of this type, further bronchoscopic study should be made in the hope that a stenotic bronchus can be found and dilated. Bronchoscopic examination can be made under local anesthesia with very little discomfort to the patient and a minimal amount of risk.

Spontaneous pneumothorax occasionally follows dilatation of a bronchus and aspiration of an abscess but the collapsed lung

usually expands without the development of effusion. In most instances the possibility of pneumothorax cannot be considered a serious complication. It may not produce symptoms and unless the patient is carefully examined after bronchoscopy, it may go undiscovered. A small or moderate amount of bleeding usually follows dilatation of a bronchial stricture but profuse hemorrhage is rarely encountered.

When one considers the fact that 75 per cent of all pulmonary abscesses can be cured by one or two bronchoscopic treatments with very little associated discomfort or risk, the desirability of this method of treatment is readily apparent.

#### CONCLUSIONS

Bronchoscopy is necessary for the accurate differentiation of lesions producing a suppurative process in the lung. Dilatation and aspiration of the bronchial abscess will result in cure in approximately three-fourths of the cases, and the treatment can be carried out under local anesthesia with a minimal amount of discomfort and risk.

---

#### A CONSIDERATION OF FUNCTIONAL DISORDERS IN RELATION TO DISEASES OF THE GALLBLADDER

By  
JOHN W. BOGGESE, JR., M. D.  
Guntersville, Ala.

The importance of seriously considering the gallbladder as a probable source of all types of digestive disorders, abdominal distress, and focus of infection is well recognized. In frequency of infection it ranks second only to the appendix. To the mind of some physicians the diagnosis of gallbladder infection or disease suggests gallstones and operation, but this conclusion is by no means justified. The treatment of gallbladder disease is primarily a medical situation which becomes surgical only when mechanical complications develop. With proper consideration of the functional disorders, which precede mechanical complications and distressing symptoms, it is believed that many useless operations can be avoided. The necessity of considering the gallbladder as a secondary complication to other disorders is well evidenced by the fact



that cholecystectomy too often fails to relieve the patient of his distressing symptoms, resulting in prolonged and unnecessary suffering—and eventually a neurosis.

In a series of approximately forty cases of definite gallbladder disease, or, probably better, hepato-biliary disorders, as proven by subjective and objective symptoms, cholecystography, and van den Bergh tests, we have found several almost constant functional disorders; namely, slight to marked hypothyroidism, low normal to markedly decreased blood calcium, and dysinsulinism. The latter may manifest itself as hypoinsulinism, hyperinsulinism, or frank dysinsulinism, using the classification of Dr. Seale Harris. Occasionally, but by no means constant, there is a marked increase in blood phosphorus, resulting in a condition we have previously termed "metabolic phosphorus poisoning." (Clin. Med. & Surg., Vol. 43, No. 11, Nov. 1936.)

When this latter condition is present the symptoms are much more pronounced. This fact must be kept in mind also, not so much as a factor in treatment but in order to account for the vast amount of fatty infiltration so often seen in a gallbladder after removal; and that cannot otherwise be explained.

It is not often in the milder types of gallbladder disorders that the patient complains of definite, clear-cut symptoms. He complains usually of vague but disquieting symptoms, such as rheumatic pains, nervousness, constipation, "biliousness," giddiness, headache, and various digestive disorders, weakness, insomnia, etc. It is during this stage that active treatment must be instituted if the patient is to be spared mechanical complications. If left alone, no doubt the gallbladder eventually becomes a functionless tube, "a graveyard for gallstones," and a focus of chronic infection.

We made every effort to confirm our findings by a check of available literature and personal communications with clinicians, surgeons, and some of the larger research laboratories. In this, however, there has been little success. We find that in the majority of cases the blood calcium determination has not been made at all; only in a small percentage of cases have the basal metabolic rate and glucose tolerance been determined, and practically in no instances

have phosphorus and cholesterol determinations been made. A few excerpts from personal communications follow:

(Dr. Earle Drennen, Surgeon, Birmingham, Ala.): "Out of nearly five hundred thyroidectomies which I have done, there have been only two persons who have also had their gallbladders removed. One of these, Mr. P. Y. W., age 37, was operated on by myself in 1927 for chronic cholecystitis without stones. Three years later he had marked hyperthyroidism, basal metabolism plus forty, and marked exophthalmus. A subtotal thyroidectomy was done and he has remained well to date.

"Another patient, a white woman, age 51 years, had marked hyperthyroidism and basal metabolism plus 29. A subtotal thyroidectomy was done in 1927, and she has since remained well of her thyroidism. However, in 1932, five years later, she had several attacks of cholecystitis, necessitating removal of her gallbladder, which was done in 1932. There were no stones but marked inflammation.

"Of the many thyroidectomies that I have done, none of the others has shown any gallbladder complications.

"I am quite positive that many gallbladders we have operated on, particularly the ones with stones, would have shown a very low basal metabolism."

(Dr. James E. Paullin, Internist, Atlanta, Ga.): "My secretary has just gone through my records and it seems as though we have only had two cases of gallbladder disease on which basal metabolism tests have been run and showed evidence of hyperthyroidism. Both of these patients have had thyroidectomies."

Drs. F. M. Douglass and W. W. Stone (Ohio State Med. Jour., Jan. 1930) report two cases of recurrent hyperthyroidism as a result of gallbladder disease with apparent cure after cholecystectomy.

Space will not permit other quotations, which are similar in all instances. However, it is apparent that hyperthyroidism and gallbladder disturbances do not go hand in hand, and that such complications are very, very rare.

In our series of cases the basal metabolic rate has ranged from minus 12% to minus 33%, average around minus 18%. The blood calcium level was 9.0 mgms. per 100 cc. or below, never above 9.0, which is considered low normal by most authorities. As stated previously, the pancreatic dysfunction has not been constant. The blood phosphorus has been elevated in approximately one-fifth of the cases.

An attempt will be made to briefly explain why these various dysfunctions may account for so much hepato-biliary disease

and why so many patients are not relieved of their symptoms after cholecystectomy.

#### THE THYROID

We are sure that the cellular infiltration which is commonly the result of major degrees of hypothyroidism involves the structures related to the gallbladder and contiguous tissues just as it involves the rest of the body. It is entirely possible that a major degree of hypothyroidism could simulate biliary obstruction—not perhaps to a major degree such as stones, but at least partially so. The fact remains that hypothyroidism does cause this cellular infiltration and can involve these particular tissues. Hypothyroidism always imposes very decidedly upon the emunctories because when the thyroid fails to do a good job of cellular chemical regulation, other parts of the body have to take this slack up, and, therefore, the liver is imposed upon and eventually slows up in all of its functions, biliary as well as detoxicative. Thus it is conceivable that a major degree of hypothyroidism, or even a minor degree that has lasted a long time, can cause hepato-biliary stasis and insufficiency. It is well known that hypothyroidism causes hypercholesteremia and that the majority of gallstones are formed from cholesterol. Admitting these statements to be true, it can be seen readily that normal thyroid function is essential to prevent or cure hepato-biliary stasis and infection, as well as to prevent the formation of gallstones.

#### BLOOD CALCIUM

It is not true in all cases, but hypoparathyroidism and hypothyroidism are usually in combination, as evidenced by the low blood calcium with the patient on a liberal calcium-containing diet. When this condition exists, the administration of calcium alone does not usually raise the blood calcium level. Parathyroid extract must be given also. It is apparent from our observations that 9.0 mgms. of calcium per 100 cc. blood, in many instances, is insufficient to prevent smooth muscle spasm. Calcium has the ability to raise the threshold of pain and allay smooth muscle spasm. Its use intravenously to relieve the spasm of biliary colic, lead poisoning, ureteral colic, etc., is well known. It is believed that patients subject to smooth muscle spasm, re-

gardless of location, will be less likely to suffer such attacks if the blood calcium level is maintained at or above 10.0 mgms. per 100 cc.

#### DYSINSULINISM

The pancreatic disturbance, which is usually present, may be due to the tissue changes previously discussed, or from infection due to its anatomic relationship with the gallbladder.

#### HYPERPHOSPHOREMIA

This condition, as previously stated, is by no means constant. However, it is important to keep it in mind as a symptom-producing factor and to account for some of the pathology which cannot otherwise be explained. The cause and treatment are the same as those of hypocalcemia.

#### DISCUSSION

Most every physician has several cases of known gallbladder disease to worry him; some poor operative risks, some who refuse operation, and some without sufficient demonstrable pathology to warrant advising operation; and, last but not least, some who have been operated on and not relieved of their symptoms. These cases, as a rule, are hard to manage, and much care must be exercised in administering opiates in order to avoid addiction. Many of us have been guilty of advising operation because the patient failed to respond to the ordinary recommended treatment of "bile stimulation," with the hope that the surgeon might find and remove sufficient pathology to effect a cure. This is the reason we so often hear, "I have not had a well day since I had my gallbladder removed."

The rheumatic condition which so often complicates the picture, and which is principally "muscle and nerve rheumatism," may be accounted for by similar nerve tissue changes, toxemia, infection, or nitrogen retention due to hypothyroidism. (Nitrogen Retention Due to Hypothyroidism, J. W. Boggess, Jr., *South. M. J.*, Vol. 29, No. 5, May '36.)

Knowing these facts as we do, it behooves us to use every means at our disposal to make a correct diagnosis in the beginning and institute proper treatment from the start, even though operation is indicated, and to continue it as long as indicated, if we



are to save our patients from "physical bankruptcy." Given a patient with such functional disorders as have been discussed, would it not seem ridiculous to expect cessation of symptoms after cholecystectomy alone?

#### TREATMENT

The treatment is simple and directed solely for the correction of the dysfunctions mentioned and the stimulation of the flow of bile. For the latter, bile salts and salicylic acid in combination seem to be the most effective. We might add that results in treatment have been very gratifying and that the patients are usually very grateful for the relief of these often vague but disquieting symptoms.

#### CONCLUSION

In this paper we have tried to show why and how functional disorders may cause symptoms referable to the hepato-biliary system and eventually result in organic disease, if left untreated; also, to show why patients with organic disease of the gall-bladder are often times not relieved of their symptoms after cholecystectomy. We hope that our reasonings have been clear and that our work on this subject has been without error. We might add in closing that hypothyroidism seems to be as prevalent in the thin, underweight as in the obese. We are sorry that space will not permit the report of cases. However, we might say that improvement has been demonstrated in these cases by the same methods employed in making the diagnosis.

#### WARNING

One by the name of S. R. Ray and representing himself as a salesman for Continental Press, Inc., 418 Wabash Avenue, Chicago, has been contacting physicians in various parts of the state in an effort to sell publications. Some members of the Association have invested with him and have received nothing in return. Information is to the effect there is no such concern as Continental Press. Beware of him!

## FRACTIONAL DOSES FOR INFANTS AND CHILDREN\*

PROPOSING A FORMULA FOR DETERMINING DOSES OF POTENT DRUGS DURING INFANCY

By  
R. E. CLOUD, M. D.  
Birmingham, Ala.

The problem of deciding upon the proper dose of a given medicine for a particular infant or child is one that, at times, annoys and perhaps perplexes many physicians. The following is submitted with the hope that it may help to simplify this branch of posology.

The chief factors responsible for the complexity of dosage in early life are:

(1) The hypersusceptibility of these youthful patients to opiates and other narcotics;

(2) Their surprising tolerance for certain other drugs;

(3) The ability to take many medicines on a child-adult weight proportion basis without regard to age except as indicating the approximate weight of the patient;

(4) Variation of patients in age and weight necessitating a corresponding variation in dosage; and,

(5) Lack of a satisfactory means of measuring accurately small doses of liquid medicines.

It is evident, therefore, that much of the difficulty is due to the child's behavior toward different groups of drugs and it is of the greatest importance, as a first principle, that the practitioner be able to classify the medicines he uses according to the tolerance of infancy and early childhood. True these groups merge somewhat into one another but, in general, we have opiates and other narcotic drugs to which certain of these little patients are hypersusceptible; while, on the other hand, arsenic (Fowler's solution), belladonna and purgatives in general are, as a rule, exceptionally well borne in early life. Between these extremes there is a large group of drugs, including digitalis, iron, quinine, aspirin, antipyrine, and, in fact, most ordinary medicines, to which the infant and child exhibit about the same behavior as the average adult. In other words, the small patient's dose of medicines of this group may be cal-

\*Read before the Jefferson County Medical Society, Birmingham, November 16, 1936.

culated from that suitable for the adult on a simple weight proportion basis.

Of drugs in general we are naturally most concerned with those to which our patients are sensitive, especially since some of them are among the most useful; and to obtain specific action they must be given in effective doses, while overdosage may be followed by serious consequences. Knowing that they are not well borne, the question arises: What is the relative degree of hypersusceptibility at different ages throughout infancy and childhood and at what age does it become negligible or practically so?

It may be safely predicated that an infant's tolerance for opiates and other narcotics is least at birth, increasing progressively until at the age of four and a half it seems weight for weight about equal to that of the adult. Comparison of generally accepted fractional doses deemed suitable for narcotic administration, with a simple child-adult weight proportion, reveals that at 4 years the dose of  $\frac{1}{4}$  of the adult is 105 per cent of the actual average weight proportion; at three years the dose of  $\frac{1}{5}$  is 95 per cent; at two the dose of  $\frac{1}{7}$  is 80 per cent and at one year the accepted dose of  $\frac{1}{10}$  is 70 per cent. Regarding the dosage,  $\frac{1}{4}$  at 4 years, it is probable that even an older child should not be given a greater proportion of the adult dose of a potent drug than the fraction made by its weight over 150 pounds (Clarke's rule). Hence, this fraction ( $\frac{1}{4}$ ) would seem better suited to the age of  $4\frac{1}{2}$  years when the average weight is about  $37\frac{1}{2}$  pounds, which of course is  $\frac{1}{4}$  of 150. The intermediate point in age between 80 per cent tolerance at two years and 100 per cent at  $4\frac{1}{2}$  is 39 months when the average weight is about 33 pounds. Assuming the tolerance at this point (39 months) to be 90 per cent of the weight proportion, the fraction of about  $\frac{29}{150}$ , or  $\frac{1}{5}$  of the adult dose is obtained as suitable at the age of 39 months, or  $3\frac{1}{4}$  years.

There is less agreement in posometric tables for babies under a year of age. Allowance is regularly made for the age factor but with little uniformity or agreement. Experience, consideration of these tables and accepted usage, however, suggest the tolerance percentages for this period of life given in Table 1.

TABLE 1

Tolerance Percentages, Infancy and Early Childhood

|                       |                           |
|-----------------------|---------------------------|
| At birth              | 50% of weight proportion  |
| $4\frac{1}{2}$ months | 55% of weight proportion  |
| 7 months              | 60% of weight proportion  |
| $9\frac{1}{2}$ months | 65% of weight proportion  |
| 1 year                | 70% of weight proportion  |
| 2 years               | 80% of weight proportion  |
| $3\frac{1}{4}$ years  | 90% of weight proportion  |
| $4\frac{1}{2}$ years  | 100% of weight proportion |

The question of hypersusceptibility then, applying chiefly to narcotics, is of very great importance probably only from birth to the age of four.

Clearly, no fixed rule can be accurate throughout infancy and childhood for the different drugs one would employ. A formula for estimation of doses of narcotics for use in conjunction with Clarke's rule is suggested in this paper. However, neither seems practical for bedside application. To avoid confusion, complicated calculations and undue tax of memory, a table of fractional doses seems essential. It should present two scales of dosage, one for administering narcotics and based on both limited tolerance and weight proportion; the other, a simple infant and child-adult weight proportion giving fractional doses suitable for other ordinary medicines, except purgatives, from birth onward. After the age of four, the fractions in the two scales would be identical. Regarding arsenic, belladonna and a few other drugs, while their margins of safety are remarkable, it is probable that most therapeutic indications are met by giving them also on a simple weight proportion basis.

TABLE 2

Fractional Doses

| Age                   | Ordinary<br>Doses<br>(Weight<br>Proportion) | Doses When<br>Hypersusceptibility<br>Exists Or Is Suspected |
|-----------------------|---|---|
| At birth              | $\frac{1}{20}$                              | $\frac{1}{40}$ of adult dose                                |
| 2 months              | $\frac{1}{15}$                              | $\frac{1}{30}$  |
| $4\frac{1}{2}$ months | $\frac{1}{12}$                              | $\frac{1}{20}$  |
| 7 months              | $\frac{1}{9}$                               | $\frac{1}{15}$  |
| $9\frac{1}{2}$ months | $\frac{1}{8}$                               | $\frac{1}{12}$  |
| 1 year                | $\frac{1}{7}$                               | $\frac{1}{10}$  |
| 2 years               | $\frac{1}{6}$                               | $\frac{1}{7}$   |
| $2\frac{1}{2}$ years  | $\frac{1}{5}$                               | $\frac{1}{6}$   |
| $3\frac{1}{4}$ years  |   | $\frac{1}{5}$   |
| $4\frac{1}{2}$ years  | $\frac{1}{4}$                               | $\frac{1}{4}$   |
| 7 years               | $\frac{1}{3}$                               | $\frac{1}{3}$   |
| 9 years               | $\frac{2}{5}$                               | $\frac{2}{5}$   |
| 11 to 12 years        | $\frac{1}{2}$                               | $\frac{1}{2}$   |
| 15 to 16 years        | $\frac{3}{4}$                               | $\frac{3}{4}$   |

EXPLANATION AND COMMENT

Estimates are based on average weights of boys and girls. Some slight deviations from accuracy are made to permit the asso-



ciation of certain ages with simple fractions. Fractional doses in Table 2 are calculated by Clarke's rule, modified for use when hypersusceptibility is involved by the tolerance percentages given in Table 1. The formula used for such modification is as follows:

Average weight for age x percentage  
of tolerance for age  
-----  
(Adult weight) 150 lbs. = Fraction of adult dose

Examples :

|              |  |                      |
|--------------|--|----------------------|
| At birth     | $\frac{7.5 \text{ lbs.} \times 50\%}{150 \text{ lbs.}}$  | = 1/40 of adult dose |
| 2 months     | $\frac{10 \text{ lbs.} \times 50\%}{150 \text{ lbs.}}$   | = 1/30 of adult dose |
| 4 1/2 months | $\frac{13.5 \text{ lbs.} \times 50\%}{150 \text{ lbs.}}$ | = 1/20 of adult dose |
| 7 months     | $\frac{16.5 \text{ lbs.} \times 60\%}{150 \text{ lbs.}}$ | = 1/15 of adult dose |
| 9 1/2 months | $\frac{19 \text{ lbs.} \times 65\%}{150 \text{ lbs.}}$   | = 1/12 of adult dose |

However well considered, a table or rule of dosage for infants and small children must be recognized as a suggestion of approximate doses for approximate ages and weights. Nothing will supplant the physician's judgment in making allowance for the peculiarities of the individual patient and the exigencies of the case at hand. Caution prompts that, except in grave emergencies, the initial tentative dose of a narcotic or other potentially dangerous drug be reckoned from a small or minimum adult dose.

A decided disadvantage in administering medicines to infants is that we have no satisfactory, inexpensive, accurate means of measuring small doses of liquids. One writes a prescription containing a carefully calculated amount of a potent drug to the ounce but is forced to direct that it be administered to the baby in drops or teaspoonfuls and the amount received, after all, is indefinite and perhaps far from what was intended. A medicine dropper graduated in minims would meet this particular difficulty and should be easily obtainable at a reasonable price.

DISEASES OF THE NEWBORN

By  
AMOS C. GIPSON, M. D., F. A. C. P.  
Gadsden, Alabama

The transition from intra-uterine to extra-uterine life accomplished by the birth of the infant brings with it revolutionary changes in the organism which, as to abruptness and profoundness, will never even be approached at any period in later life. With the first inspiration the sudden replacement of the placenta by the lungs as the organ for gaseous exchange begins and with it the abrupt transposition of the blood circulation. While from the beginning of labor on to the birth of the child these profound changes in its life mechanism are being arranged and accomplished, its body is also being subjected to the mechanical insults of the birth process. Immediately after birth the child is abruptly exposed to the influences of light and air. The temperature of the air is a particularly important factor because it makes it necessary to bring the complicated heat regulating mechanism into immediate action. No less profound, though not so rapid, is the change which occurs in the manner of nutrition of the organism; the cessation of placental circulation makes it necessary for the intestinal tract to care for the future nutritional needs of the child.

It is self-evident that the shocks which accompany birth cannot be without effect upon the infant organism. A certain period of time is required for the reestablishment of a state of calm, as it were, and for the processes of life so rudely upset by birth to be completely accommodated to the wholly new conditions in the outside world, and to again take up an undisturbed functional activity. This period of transition we call the *newborn period*.

It can be said that under normal conditions it is accomplished during the second week, that is, at the time when the umbilical stump, the most obvious external stigma of the newborn, has disappeared; and when the loss of weight following birth has been equalized and the birth weight regained.

The unique position which the child occupies under physiologic conditions during the first weeks of life stands out even more strikingly when the pathology of this period of life is also brought into consideration.

Next Session  
American Medical Association  
Atlantic City  
June 7-11, 1937

Here we find a whole train of morbid symptoms which have to be regarded as immediate consequences of the birth process. Then there is a further group of affections that may be considered physiologic phenomena that have developed to pathologic proportions; and, finally, there are a number of diseases which, just because of the physiologic peculiarities of that period, occur only in the first weeks of life. It will be chiefly these groups of diseases that will be briefly discussed here.

#### BIRTH INJURIES

Birth under any conditions, even the most favorable, means trauma to the child. The disturbance is most manifest in the blood vessel system through congestion. We may call these injuries, that take place during a normal case of labor, physiologic birth injuries.

#### INTRACRANIAL INJURIES

The birth injuries most significant for the child are those of the brain. There is a whole list of factors which play a role in the production of intracranial injuries:

1. The direct mechanical influence on the child's head.
2. Disturbances of circulation produced in the presenting part of the head, during the period of its delivery, through decreased pressure action.
3. Disturbances of the general circulation which occur during pains and give rise to so-called intra-uterine asphyxia, the most significant manifestation of its effect.
4. The friability of the blood vessels, and vulnerability of the brain substance.

Space does not permit a discussion of these factors.

*Symptoms:* The child does not really cry; it only whimpers and continues in a state of somnolence. It cries either not at all or differently from the normal child. If severely injured the child will neither nurse at the breast nor on the bottle.

Infants that die within the first days of life usually show a marked degree of flaccidity. Otherwise one finds increased muscle tonus more frequently than a condition of hypotonus. The mechanical irritability in such cases is often greatly increased. If, for example, one tries to suddenly extend the hypertonically flexed arm, a coarse

clonic tremor sets in. Convulsions occur in the severe types.

Cyanosis is the symptom which usually leads up to the diagnosis of intracranial injury. Intermittent cyanosis occurring in the first few days after birth usually means intracranial injury, differing from continuous cyanosis which means atelectasis.

*Diagnosis:* This is made on the looks and actions of the child, and the presence of intermittent cyanosis. Sometimes spinal puncture helps.

*Treatment:* The active treatment of intracranial birth injuries is restricted to an attempt, on the one hand, to stop the hemorrhage, and on the other hand to relieve a threatening increase in intracranial pressure.

Since all infants have a decrease in the coagulability of their blood during the first days of life and there would be great danger of recurrence of bleeding should hemorrhagic disease ensue, the easily carried out method of intramuscular injection of blood is especially recommended and should be freely used. From 20 cc. to 30 cc. in the buttocks are given.

To relieve the intracranial pressure, spinal puncture should be done early and repeated daily if necessary.

#### HEMORRHAGIC DISEASE OF THE NEWBORN

At no time in life does one so frequently see disease conditions in which hemorrhages and effusions of blood dominate the clinical picture as during the newborn period, and here especially during the first days of life. In contradistinction to the hemorrhagic diseases of later life, in which we are, for the most part, dealing with a permanent tendency to illness, an hemorrhagic diathesis, we have before us in the newborn a hemorrhagic tendency, not of the nature of an inherited individual idiosyncrasy in the child affected but rather a transitory condition that is based on peculiarities of the newborn period itself, and, in case it is overcome, will not recur.

As a factor disposing to hemorrhages we may cite hyperemia or congestion which takes place in every birth and is intensified by a certain degree of asphyxia; and, in addition, the high specific gravity and increased viscosity of the newborn's blood; and, further, the peculiar permeability and



vulnerability of the walls of the vessels in the premature, especially, but also in the mature newborn. The resistance of the blood vessel walls may be further reduced by toxic substances.

Associated with these factors disposing to hemorrhage, which come from the blood vascular apparatus, are the peculiarities of the blood itself, i. e., the conditions relative to coagulation. This poor coagulability of the blood is more marked during the first four days of life. Under pathologic conditions such as hemorrhagic disease of the newborn the clotting time is increased even up to 30 to 90 minutes.

The etiology of this condition is not known.

*Symptoms:* Hemorrhage in some part of the body is the first indication of this disease. Subcutaneous, cutaneous and umbilical hemorrhages are the most common, and are usually the first to show evidence of hemorrhage elsewhere; as, for example, gastro-intestinal hemorrhages (melena neonatorum), mucosal hemorrhages, and other hemorrhages in the internal organs.

*Treatment:* The treatment of the disease just described is directed chiefly toward the disturbances of blood coagulation.

The injection of blood assumes first place among the therapeutic measures. Intravenous transfusions (10 cc. per pound of body weight or more) should be given as soon as the diagnosis is made. It makes no difference whether citrated blood or direct blood is used. The blood should always be matched. One intravenous blood transfusion is usually sufficient. However, we had one case that required three intravenous transfusions before controlling the hemorrhage.

If intravenous transfusions cannot be given, intramuscular blood (20 to 30 cc.) should be given.

#### SEPSIS OF THE NEWBORN

Sepsis is the name used to designate a generalized disease caused by bacteria, chiefly the pyogenic organisms, developing either in connection with a localized primary affection which serves as a portal of entry, or without any such primary focus. It may sometimes even set in with generalized symptoms from the very start, without a portal of entry for the inciting organisms that can be demonstrated with certainty.

There are two reasons why such diseases occur more frequently in the first weeks of life than in later infancy: (1) there exists an especial opportunity for the newborn child to become infected through septic puerperal conditions of the mother; and (2) the newborn has a special age predisposition.

The paths by which bacteria might find their way into the body of the child are numerous. The most likely portal of infection, one might say, is the navel, where infection could occur even at the time of severing the cord, through the umbilical stump, or after the shedding of the stump, through the umbilical wound. Sepsis occurs either in connection with a local disease of the navel, or makes its appearance without any visible primary focus.

*Symptoms:* The symptoms of sepsis of the newborn are often not very pronounced. In particular, the septic type of fever, so characteristic in later periods of life, is lacking. Sometimes there may be high temperatures alternating with low or subnormal temperatures, but usually no regularity obtains. In many cases fever is entirely absent. One might almost assert that fever in the newborn period is more often aseptic than septic. The spleen may be enlarged but it need not be.

The most essential clinical sign is the habitus septicus, and the worn-out, withered, sometimes toxic look; and that woe-begone, disgusted facial expression and the complaining whimpering and grumbling that go with it. The skin has a faded-gray color which tends to icterus. Added to this is the condition of dehydration that may take place very rapidly, due to absorption or melting away of tissue substance, to water loss and the very limited food and fluid intake.

Marked vomiting occurs in some cases, and is incited by every attempt to administer food for fluids. There may be symptoms of cerebral irritation—clonic and tonic convulsions, sharp outcries and a state of general agitation.

*Treatment:* As to the therapy of sepsis of the newborn, we must confess that, at least in severe cases with a positive diagnosis, even modern methods of treatment have not shown any convincing results.

It is very important to adequately meet

the water requirements of the body by administering fluids abundantly, orally (gavage), subcutaneously or intraperitoneally. Blood transfusions are probably our best treatment. Breast milk is the food of choice.

#### TRANSITORY FEVER

The name indicates a transitory increase in body temperature, which one often meets as a symptom accompanying dehydration, between the second and fifth day of life. Most frequently the fever is noted on the third or fourth day, that is on the days in which the weight curve tends to reach its lowest point. Graphically recorded, the highest point of the temperature curve lies directly above the angle formed by the weight curve. The rise of temperature is often restricted to one temperature reading, but may be for a longer period of time.

Children with a high birth weight and such as have a marked weight loss (over 10%) are most likely to have transitory fever.

The circumstance, that the more marked the weight loss the greater the probability that hyperthermia will occur, permits it to appear thoroughly correct to attribute etiologic significance to the factor of dehydration. For the justness of this assumption may be cited the fact that one can prevent the appearance of the fever by administering an abundance of water from the beginning. To be sure, one must not on this account assume that dehydration is solely a result of inadequate food or fluid intake. Fluid loss is the essential thing.

Transitory fever is, as the name implies, a passing one, therefore a symptom with an entirely favorable prognosis and demanding no special treatment. The management is restricted chiefly to combating dehydration.

#### ICTERUS NEONATORUM

The cord blood contains an abundant quantity of bilirubin. This increases during the first twenty-four hours and even to the third day of life. It then tends either to decrease rather rapidly or to persist throughout a longer period.

This physiologic hyperbilirubinemia of the newborn forms the basis for icterus neonatorum.

The increase of bilirubin in the blood

taking place during birth must have its cause in an increased breaking down of blood pigment. As a source of the latter the placental blood comes into consideration only to a slight degree. By far the greater significance must be assigned to the disintegration of erythrocytes in the body of the child. The high values for hemoglobin and erythrocyte count that exist in the fetus have their origin in the relative oxygen poverty of the fetal blood, which is compensated for in this way. After respiration begins there is no longer a need for the excess erythrocytes, and they disintegrate.

No treatment is necessary or of any value.

#### BIBLIOGRAPHY

1. Abt, I. A., ed.: *Pediatrics*, Philadelphia, W. B. Saunders Company, 1926.
2. Garrod, A. E.; Batten, Frederick, and Thursfield, H. E.: *Diseases of Children*, New York, Longmans, Green & Company.
3. Griffith, J. P. C., and Mitchell, A. G.: *Diseases of Infants and Children*, Philadelphia, W. B. Saunders Company, 1927.
4. Pfaundler and Schlossman: *Diseases of Children*, 1935.

## TRAUMATISM AND PARKINSONISMUS

By

WALLACE MARSHALL, M. D.

Instructor in Medicine

University, Alabama

And

VICTOR F. MARSHALL, M. D., F. A. C. S.

Appleton, Wisconsin

The etiologic aspects of this clinical syndrome have been discussed from time to time in various medical publications. However, case reports of parkinsonismus of traumatic origin are rather uncommon in the literature. For this reason, we wish to report and discuss an interesting case for which we have complete clinical data.

Tice<sup>1</sup> describes the following etiologic factors in the production of this syndrome: Heredity may be predisposing (15% of cases); anxiety, worry, emotional excitement, fright, grief, and anger play some part, as does trauma with its accompanying psychic effects. Kraft-Ebbing<sup>2</sup> claims

1. Tice: *System of Medicine*, W. F. Prior Co., Hagerstown, Maryland.

2. Op. cit. (quoted by Tice).



that overstrain of muscles may bring about the condition.

Bing<sup>3</sup> concludes that the following points must be present to establish any connection between trauma and paralysis agitans:

1. Trauma must be severe enough to be able to cause some cranial lesion or at least call forth symptoms of a *commotio cerebri*.
2. Patient who suffered from trauma must not have been a previous subject to cerebral symptoms.
3. Parkinsonian syndrome must not follow the trauma immediately; its development ought to be preceded by some prodromal symptoms (cerebral) which would then develop a characteristic clinical picture.

Bing believes that, should these points be observed strictly, the number of cases of traumatic parkinsonism would be reduced to a minimum. He is of the opinion that trauma plays a secondary role in paralysis agitans.

Kulkov<sup>4</sup> maintains that the symptoms of commotional encephalosis, which follows trauma of the skull, may have concealed a rudimentary form of epidemic encephalitis which later on develops parkinsonism. He quotes Crouzon's rules for establishing a diagnosis of traumatic parkinsonism which are:

1. A severe trauma which could itself provoke a *commotio cerebri*.
2. The interval between trauma and the onset of parkinsonism must be neither too short (hysterical traumatism) nor too long.
3. Between the moment of traumatization and the development of organic symptoms, the course of the disease must be unintercepted.

Breutsch and De Armond<sup>5</sup> report a case with complete clinical history and pathological observations. They conclude that the petechial and perivascular hemorrhages in the basal ganglia and midbrain areas take place at the time of the trauma and are absorbed in the post-traumatic period.

Naville and De Morsier<sup>6</sup> studied injuries

as etiologic factors in the parkinsonian syndrome and concluded that this is caused by contusional encephalitis. They noted that the syndrome appears from several days to three months or more after injury to the head, as in a cerebral concussion.

In 1909, Starr made a survey of the literature on this topic. In a great number of cases he found that there was a tendency to include psychic trauma among his cases. He notes that Ruheman's case (1904) fell from a window and developed the syndrome three months later. This patient suffered a nervous breakdown some years before the accident. Starr also mentions Decker's case (1913) where the patient received a blow on the arm and developed the syndrome fourteen days later. This patient was described as being "very nervous" before the accident. Starr concludes that the following factors must be present to cause parkinsonism:

1. Trauma must be of sufficient severity to produce definite damage to the brain.
2. Trauma must be directly to the head, or, if not to the head, of such nature as to indirectly involve the brain.
3. There must be clear and definite developmental connection between trauma and disease.

#### REPORT OF CASE

On August 8, 1935, the patient, age 44, was on a wagon loading barley, and while on the top of same, the wagon tipped causing the patient to fall. He recalled that he felt himself being precipitated to the ground, but did not remember any other circumstances until questioned by a nearby worker. He told this person that he felt "something hot running inside him." He was unable to assume an upright position. The glasses he wore were not broken by the fall. He was taken to his home, and one of us (W. M.) responded to the call for aid. Upon arrival, the patient appeared in great distress. He exhibited a clammy sweaty skin; the pulse was 90/minute and feeble in quality. The patient did not wish to be moved, but remained kneeling on his hands and knees before a davenport. Hasty examination showed no signs of fractures, but the patient experienced a dyspnea and stated that he could "hardly catch his breath." He was given dilaudid, grs. 1/20, hypodermically, placed in a car by four men, and taken to the hospital. There he was skiagraphed in the area of the lower ribs, abdomen and pelvis. A reading of the wet plate indicated no fractures, but exhibited slight clouding of the right kidney region. He was put to bed and treated for shock (8:30 P. M.). Examination revealed a board-like rigidity of the anterior right portion of the abdomen. Blood pressure was 126 systolic and 70 diastolic; pulse rate

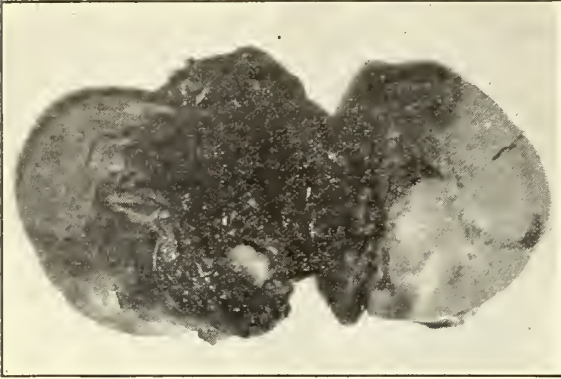
3. Bing; Schweiz. Mediz. Woch. No. 28, 1929.

4. Kulkov, A. E.: J. Nerv. and Ment. Dis. 75: 361 (April) 1932.

5. Breutsch, W. L. and De Armond, M.: J. Nerv. and Ment. Dis. 81: 531 (May) 1935.

6. Naville and De Morsier: Ann. de Med. Leg. 12: 165, 1932.

was 90/minute. Respirations were 22/minute and regular. Temperature (orally) was 98.6 F. There was a marked pallor of the face and mucous membranes. Pupils were constricted (effect of dilaudid?). Heart and chest were apparently normal. No ecchymosis nor marks of trauma were noted on any part of the body.



Photograph of extirpated right kidney which had been split in half by the accident. Note the evidence of massive hemorrhage as shown by the huge bloodclots. Small chickenfat clot is noted in the lower left half of the kidney.

The next morning, August 9, 1935, blood was found in the urine; patient was reexamined, and a diagnosis was made of ruptured right kidney with internal hemorrhage. Immediate operation was advised and consent was given. Upon doing a Mayo-Robson incision and opening the surgical area, many clots of dark blood were present and free blood oozed out continuously. The kidney was found to be divided completely in its middle portion to the pedicle, and one segment was pushed anterior because of the excessive hemorrhage. All bleeding points were ligated, and the pedicle was doubly clamped and ligated. Rubber dam was inserted; the wound was closed around clamps on the pedicle after both sections of the kidney had been removed. Postoperative condition was fair.

At 4:00 P. M., August 9th, excessive bleeding was noted in the wound area. The patient was taken again to the operating room and the wound was reopened; the source of the hemorrhage was followed and found to be in the pedicle. Two separate loops of chromic two catgut were transfixed here and the clamps removed. The hemorrhage was stopped; the wound was dry. Rubber dams were reinserted and the wound was closed routinely. The postoperative condition was good.

At 5:30 A. M., August 10th, an interne was called to see the patient, who, while drinking water, suddenly stiffened his entire body; his eyes became glassy, and he did not respond to his name.

Upon examination, there was no distention nor rigidity of the abdomen; there was a soft systolic murmur in the mitral region of the heart, but the pulse was 96, regular and full. Examination of the chest was negative and there was no coughing. (Probably small embolus to motor cortex.)

From that time on the patient improved and suffered no complications until August 16th when

he became very restless and noisy and got out of bed. He was placed in restraints and given a sedative (sodium amytal, grs. 3). Again he improved and left the hospital on September 30th in an ambulatory condition (twenty-two days in hospital).

The patient was visited at various times after discharge from the hospital. It was noted that he began to exhibit a marked coarse tremor of both hands, and that he showed a distinct alteration in gait which became progressively worse. On November 7th, a complete history was taken and examination done. The findings were:

#### Complaints:

1. Continuous twitching of back muscles, especially on the right side and also twitching of gluteal and thigh muscles of the right lower limb, which condition was constantly present. Twitching was present also in both arms and was rhythmic in the nature of "pill rolling."

2. Radiating pain in the left upper extremity upon movements of adduction and abduction. Pain radiated over external lateral surface down to the central aspect of the hand in the palmar area.

3. Pain in lumbar and sacral regions which is continuous. Patient finds it difficult to describe the type of pain. Certain lateral movements of the body causes stabbing pain in the right lateral lumbosacral region.

#### Family History:

Father dead, age (?), carcinoma.

Mother living, age 80, crippled because of auto accident.

Brothers (3)—40, 48, 50, living and well.

Sisters (1)—43 living and well. None dead.

#### Personal History:

No diseases of childhood which he recalls.

Veneral—denied.

Marital—Married at 27. Wife has five children living and well. (None dead.)

Habits—Uses no tobacco. Used moderate amount of alcoholic beverages prior to accident. (Beer and whiskey occasionally.)

#### Past Illnesses:

Arthritis (rheumatism) 1932, not confined to bed.

Otherwise negative.

No operations or accidents, except the aforementioned surgical experience.

#### Occupation:

General manual labor, no occupational hazards.

#### Examination (in nude):

Height—Five feet, six inches. Weight—140 lbs. Temperature 98.4 F. Blood Pressure—140 systolic, 100 diastolic. Pulse 90/minute. Gait—Deliberate shuffling gait with tremor; favors right lower limb and does not pick feet off the floor. Eyes, Ears, Nose, Throat are negative as are the Neck, Chest, Lungs and Heart and Abdominal and Inguinal Regions. Upper Extremities—Movements show "cog-wheel" motion, and extended fingers have rhythmic tremor, especially right hand. Diminished muscle power in both arms. Vertebral regions are negative. Back shows nephrectomy incision with linear smooth scar; otherwise negative



findings except for some tenderness upon Murphy percussion over left renal area. *Lower Extremities* show no muscular atrophy, but have continuous fibrillary twitching of muscles in right hip, thigh and lower leg. *Coordination*—Negative Romberg sign. Some swaying of body with eyes closed, but none with eyes open. Patient unable to stand upon either foot without losing balance. No past-pointing noted. *Speech* is slow but normal; slight tremor of jaw noted. No aphasia present. *Reflexes*—Pupillary is normal, but all deep reflexes of upper and lower extremities are hyperactive. There is tendency for ankle clonus on the right side. No pathological reflexes noted. *Muscle Strength*—Notably reduced in both upper and lower extremities. *Sensory System* is normal throughout.

*Laboratory Findings: Urine*—Trace of albumin and very occasional granular and hyaline casts with many leucocytes. *Blood*—Hb. 76%; red blood cells 2,950,000; white blood cells 6,650. Polys. 62%, small lymphocytes 32%, large lymphocytes 4%, eosinophiles 1%, basophiles 1%. Wassermann—Negative. Sugar 80 mg/100 cc. Non-protein-nitrogen 33 mg/100 cc. *Spinal fluid findings*—Not sufficient for Wassermann. Gold Sol.—0122100000. Ross-Johns test and Noguchi test faintly positive.

*X-Ray Report*—Stereoscopic examination of lower dorsal, lumbar, sacro-iliac, and pelvic regions negative for any osseous injury or other abnormality.

*Diagnosis*—Parkinsonismus due to trauma.

#### COMMENT

Although this patient was known to be exceedingly religious, and temperamental at times before the accident, he never exhibited any symptom nor sign of that which has been described following the injury.

It is impossible to state what part emotional stress played in this case, as domestic difficulties were evident both before and after the accident. Emotional stress and strain have been shown experimentally to produce brain changes<sup>7</sup> and may be regarded, per se, as traumatic in nature. It is rather difficult to argue about the physical or psychologic aspects of trauma if the same mechanism is involved in the production of such a clinical picture, which is based on definite cerebral pathologic changes, as have been described by many observers.

If necrosis had taken place, following the petechial hemorrhages, and was stationary and not progressive, as we would expect, it is rather difficult to explain the progressive character of parkinsonismus. Perhaps a

recent theory<sup>8</sup> may help to explain this phenomenon. One of us (W. M.) has noted, in a series of cases, that the primary brain damage in the subcortical areas causes a dysfunction of correlation and, consequently, a loss of the ability to perform associated movements. This inability to perform simple movements of dressing, walking, and the like, causes a definite reaction in the patient who begins to withdraw from the stress and strain of his environment. He develops defense reactions which are very evident clinically and which have been noted in the above paper.

In other words, cases with parkinsonismus exhibit two types of pathology. One has to do with the destruction of brain areas, and the other is superimposed on this tissue necrosis and is psychopathologic in nature. Both can be regarded as traumatic in the broad sense of that term.

#### SUMMARY

We have briefly reviewed the literature on the topic of parkinsonismus and have presented an unusual case of traumatic origin, which followed a nephrectomy for ruptured kidney with internal hemorrhage. We have discussed the traumatic aspects of the condition and have emphasized that trauma may include both physical and emotional aspects. We have reviewed a theory to explain the progressive nature of the disease.

8. Marshall, W.: Psychopathology and Treatment of the Parkinsonian Syndrome and other Post-Encephalitic Sequelae, *J. Nerv. and Ment. Dis.* July, 1936. (Abst. J. A. M. A., Sept. 19, 1936.)

*Puerperal Infection*—In the conduct or management of labor the same precaution and aseptic methods should be used that are employed in the operating room. All too frequently the mask that covers both the nose and the mouth is neglected to be worn in the delivery room. Masks should be worn, not only by the physician and nurse, but by all who are in contact with the patient during labor and delivery to protect the patient from being sprayed by those who have a respiratory infection or who may be carriers of streptococcus hemolyticus. When the field about the perineum is prepared for delivery in the same way that preparations are made for an abdominal operation, and when the same precautions exercised by the surgeon to keep the operative field sterile and to maintain effective asepsis are used by the obstetrician in his deliveries and operations, then the work in obstetrics will have brought about a material decrease in the number of cases of puerperal infection.—*Hannah, Texas State J. Med., April '37.*

7. See Crile's theory of anoci-association.

# THE JOURNAL

OF THE

## Medical Association of the State of Alabama

---

### Editor-in-Chief

FRED W. WILKERSON.....Montgomery

### Associate Editors

M. Y. DABNEY.....Birmingham  
W. D. PARTLOW.....Tuscaloosa  
J. N. BAKER.....Montgomery  
DOUGLAS L. CANNON.....Montgomery

---

Please send in promptly notice of change of address, giving both old and new; always state whether the change is temporary or permanent.

---

### Office of Publication

519 Dexter Avenue.....Montgomery, Ala.

---

Subscription Price.....\$3.00 Per Year

---

May 1937

---

### THE BIRMINGHAM MEETING

Medically speaking, all sections of Alabama were represented at the annual meeting of the Association held in Birmingham, April 20-22. Several other states were also represented by speakers and visitors.

Dr. E. S. Sledge, of Mobile, was elected President. Dr. A. B. Coxwell, of Monroeville, was chosen to succeed himself as Vice-President of the Southwestern Division. Dr. W. D. Partlow, of Tuscaloosa, and Dr. T. Brannon Hubbard, of Montgomery, were reelected to membership on the State Board of Censors. Dr. Lloyd Noland, of Fairfield, the retiring President, was chosen a member of the Board to succeed Dr. W. F. Scott, of Birmingham, resigned.

An unusual feature of the program was the large number of younger members of the profession who contributed papers.

As usual, the crowning event of the session was the Jerome Cochran Lecture, delivered by Dr. Frank H. Lahey, of the Lahey Clinic, in Boston, who spoke on "Carcinoma of the Colon and Rectum." Dr. Lahey stressed the importance of a complete and thorough examination in every case of suspected cancer of the colon or rectum, and radical removal of even small lesions.

The Association's public meeting on Wednesday evening, April 21, was address-

ed by Dr. Charles Gordon Heyd, of New York City, President of the American Medical Association, who spoke on "The Contribution of the American Medical Association to the Public Health," and by Dr. E. W. Norris, of the United States Public Health Service, whose subject was "Syphilis." This meeting was largely attended, not only by members of the medical profession but also by the Birmingham public.

There were interesting scientific exhibits on syphilis, tuberculosis and cardiac and cardiorenal disease. Each exhibit included the showing of motion picture films. The commercial exhibits were numerous and interesting.

The session was interspersed with many social features, including a reception and dance at the Highland Park Country Club, a luncheon given by the Jefferson County Medical Society, the annual Phi Beta Pi alumni banquet, and dinner and luncheon meetings of alumni of the University of Alabama and Emory University.

All in attendance were profuse in their expressions of appreciation to the Jefferson County Medical Society for the numerous courtesies extended; and to the President for the excellence of the program.

The Association's next annual session will convene in Mobile, April 19-21, 1938.

---

### AMERICAN FOUNDATION STUDIES IN GOVERNMENT

The recently published report of the American Foundation Studies in Government, to which the title "American Medicine" has been given, furnishes valuable reading. In the effort to elicit opinions from medical men concerning the necessity, if such exists, for changes in present methods of medical practice the Foundation addressed a well considered inquiry to ten thousand American physicians living in all parts of the country.

The report embodies the results of this inquiry. The two volumes summarize in a very readable manner, with extensive quotations, the comments of the 2200 men who replied. This is done with an impartial pen and it is evident that no attempt is made to influence editorially the opinion of the reader. He is left to form this from the replies quoted.



Almost every shade of opinion is quoted and from these one could pick evidence in support of any of the proposals yet offered, whether conservative or radical. The heartening thing to the present writer is that the arguments offered by the physicians who propose radical changes are, as a rule, based on false assumption and inadequate knowledge of medical history elsewhere. The preponderance of evidence is to the effect that if medical progress is constantly to go forward it cannot be by legal enactment but must travel along lines of evolutionary adjustment.

The reader will find these volumes both readable and enlightening; the American Foundation has done a difficult job well.

---

#### TREATMENT OF DELIRIUM TREMENS

During the last few months a number of articles have appeared in the press, both medical and lay, relative to the newer methods of treating delirium tremens. Cline and Coleman<sup>1</sup> have reported their experience based upon 616 cases of alcoholism seen during a two-year period (1933-1935). The authors say that "we shall attempt to show . . . that an alarming death rate in delirium tremens need not obtain, and that such has been the case in the past chiefly because the most effective therapy has been very little in general use . . ."

"The treatment used in this study is our own modification of Steinbach's original method, based on the assumption that the increased spinal fluid pressure in delirium tremens is intimately concerned in its pathogenesis and that the most effective method of attack is through cerebral dehydration, both by direct and by indirect means." They then outline their routine treatment as follows: (1) Spinal drainage; (2) 50 per cent dextrose given intravenously; (3) magnesium sulfate by mouth; (4) limitation of fluid intake to 1,000 cc. for twenty-four hours; (5) paraldehyde for sedation.

The investigators state that a single application of the above treatment usually

sufficed, though at times a repetition was necessary. Usually the patients slept for several hours after a treatment and, in general, they improved much more rapidly than formerly, and Cline and Coleman report that their death rate in alcoholism has been halved by the new therapeutic regime.

It is interesting to note that these experienced observers regard the famed "tapering off" process, so enshrined in the hearts of many drunkards, as being utterly futile and even harmful. They wisely hold that alcohol has no place in the treatment of alcoholism. Their conclusions are: "(1) Delirium tremens is a disease of obscure etiology. No satisfactory explanation of its development on a background of chronic alcoholism has yet been advanced. The concept of 'abstinence delirium' has been shown to be erroneous and misleading.

"(2) The pathology of delirium tremens consists essentially of acute cerebral edema and a consequent increased intracranial pressure. The latter persists throughout the duration of the delirium.

"(3) A rational procedure for the treatment of delirium tremens consists of cerebral dehydration by spinal drainage and by a brief period of water restriction combined with administration of hypertonic solutions intravenously and by mouth.

"(4) The results of this method have been uniformly good.

"(5) We have pointed out the value of this method of treatment in the management of the acutely disturbed delirious patient. We have emphasized that the sedative action of spinal drainage in these cases is particularly suited to the uses of a general hospital. We believe that widespread extension of the therapy in the general hospital field would for the most part obviate the need for psychiatric hospital treatment of delirium tremens."

Prohibition comes and goes but alcoholism does verily go on forever. And those physicians who must struggle with the inebriates, as well as friends and relatives, will welcome any additional methods of dealing with this most difficult class of patients. The studies of Cline and Coleman appear to be sound and convincing, and it is to be hoped that the procedure advocated by them will in time find general acceptance.

---

1. Cline, William B., and Coleman, Jules V.: The Treatment of Delirium Tremens, J. A. M. A. 107: 404 (Aug. 8) 1936.

## DEPARTMENT OF PUBLIC HEALTH

### BUREAU OF ADMINISTRATION

J. N. Baker, M. D.  
State Health Officer in Charge

#### REPORT OF AMERICAN FOUNDATION STUDIES IN GOVERNMENT

In the sense that adequate medical care means the kind of care needed to prevent incipient illness from progressing to serious consequences, while doing all that can be done to restore the sick to health, adequate medical care seems to be not generally available to the people of the United States, the American Foundation Studies in Government, of New York City, points out in its summary of a report covering its recently concluded survey of the health picture of the American people.

"Even if adequate medical care is less ambitiously defined, there is considerable evidence in the form not of statistics but of direct picture (by men on the scene) to justify the premise that a large part of the population does not receive adequate medical care, (a) because it costs too much, especially hospital service and the laboratory aids to diagnosis; (b) because it is too far away, as in the vast agricultural areas far removed from medical centers and without either hospitals or practitioners; (c) because the public generally does not understand and is not asking for modern scientific medical care, much of the population definitely preferring quacks, cultists and patent medicines, and, (d) finally and most important, because in the medical care of the present, the best is not yet good enough," the summary declares.

It points out that the problem of medical care is bound up with the social and economic problem as a whole and can be accurately analyzed only with this in mind.

"A number of those who lack adequate medical care lack also adequate *anything* at all," it continues. "The real solution would be a living wage for everybody employable. Medical care consists of many things besides medical advice and medicine. The achievement of public health involves factors besides medical science. The attack must be made upon a broader front."

The survey expresses the view that "the best service that can be rendered to those in

need of medical care is first of all to improve the quality of medical care and the personnel of the profession," and adds "however the problem may be defined, it cannot be defined as making mediocre medical care available to a greater number of people. Better medicine," says the doctors, "is more important than better distribution and lower costs."

To obtain that "better medicine" regarded as the greatest need for more nearly adequate medical care, the summary expresses the view of many experts contributing their opinions to the study that the standards of medical colleges should be raised and substandard medical schools closed by law.

Turning to the place of the public health officer in the work of providing the best medical care possible for the people of the country, the summary asserts that "the time has gone by when the public health officer deals only with prevention and the private practitioner only with cure," adding that "disease control and the health of the people follow no such sharp alignments of function and responsibility."

The report quotes the view of those opposing state medicine who object to "socializing medicine in an otherwise capitalistic system," and express fear of political control, of "jeopardizing research" and "destroying the doctor-patient relation," while voicing a "distrust of governmental efficiency."

Among the objections to compulsory health insurance mentioned in the report are the following: (a) that it always has a demoralizing effect on patients and doctors; (b) that it is not suited to American institutions; (c) that it offers no help to the indigent, the care of whom constitutes a grave part of the present need; (d) the danger that it will have a deteriorating effect on the quality of medical care, (e) its limited coverage, and (f) its cost.

Concerning specialization, the summary says:

"The reply to the moot question whether there is over-specialization, as one gathers it from these letters, is comparatively simple: there are too many poor specialists and not enough good ones."



It also discusses hospital costs and the possibility of lowering them by cutting out "frills," by simplifying the elaborate construction policy of recent years, and by unifying hospital management, regarding the interest of the patient as the controlling factor.

## BUREAU OF LABORATORIES

James G. McAlpine, Ph. D., Director

### SPECIMEN CONTAINERS FOR SERUM SUBMITTED FOR DARKFIELD EXAMINATION

As has been emphasized repeatedly, the ultimate control of syphilis is dependent largely on early diagnosis and adequate treatment. The burden of early diagnosis falls upon the physician, and he can confirm his clinical findings in many cases by using the facilities of the Bureau of Laboratories. Furthermore, laboratory reports frequently uncover infected individuals who have been unsuspected.

For a number of years the Bureau of Laboratories has performed the Wassermann and Kahn tests. These are run routinely not only in the central laboratory at Montgomery, but in all of the eight branches. The methods have been carefully standardized and all reagents, except sheep cells and complement (guinea pig's serum), are supplied by the central laboratory. Check specimens are sent regularly to the branches, that any irregularities may be detected. This bureau participated in a study initiated by the U. S. Public Health Service in which check specimens were sent to a number of state and municipal laboratories. The results, as far as this laboratory was concerned, were most gratifying. It has been recommended that this be a routine procedure at regular intervals, and that all laboratories performing the serologic tests for syphilis participate in such check tests on samples distributed from some central point, preferably by the U. S. Public Health Service. In this way the reliability of these tests, as performed by different individuals and different technics, would be under constant surveillance, and errors could be rectified.

Since some time is necessary after the infection takes place for the formation of the reacting bodies which are essential for pos-

itive Kahn or Wassermann tests, more emphasis is being placed on the darkfield examination of serums from lesions, especially chancres. At the present time the Bureau of Laboratories has two darkfield apparatuses available for use in Alabama, one located at Birmingham and the other in Montgomery. Others will be established at Mobile, Decatur and possibly Tuscaloosa, if the demand warrants. Containers for the shipment of specimens will be ready for distribution shortly after the first of May.

The mailing containers for darkfield examinations are the same size as those for the Wassermann, but the label bears the letters "DF" in large type instead of "W." They consist of inner and outer screw-cap containers, and the inner one holds a stoppered Wassermann tube in which are two capillary pipettes. A small vial of wax is attached by an elastic band to the Wassermann tube. Both sides of the request slips and report form are reproduced below.

#### REQUEST SLIP

Laboratories of  
The Alabama State Board of Health

#### CHANCERE SERUM FOR DARKFIELD EXAMINATION

Sent by Dr. \_\_\_\_\_ Date \_\_\_\_\_  
Address \_\_\_\_\_  
Name of Patient \_\_\_\_\_  
Has blood been sent for serological examination?

This package consists of a sterile tube containing capillary pipettes and a vial of wax for sealing these capillary tubes after the specimen has been taken.

PLEASE READ OTHER SIDE

(Reverse side of request slip)

#### The Technic for Collection of Specimens for Dark-field Examination with Capillary Pipettes

The lesion selected for darkfield study should be as young as possible, as nearly untreated as possible, and as clean and free from detritus and secondary infection as possible. If local antiseptics have been applied, the lesion should be thoroughly cleansed and treated with moist saline dressings for 24 to 48 hours before any specimen can be taken. In all cases the chancre should be cleansed thoroughly with normal salt solution or water and dried. To alleviate pain, if so desired, apply a tablet of novocain or its equivalent, and gently rub in until the area is painless. Then pinch the lesion fairly firmly between the left thumb and index finger and rub off the exudate with dry gauze until the base is clean and bleeds slightly when the pressure is released. (If the lesion is dry remove the crust with a scalpel and scrape lightly.) Re-

lease and make pressure, as described above, on the lesion several times. After gently wiping off the blood, clear serum should exude. If the serum still appears bloody, then pressure should be applied again for a few minutes. As the clear drop of serum exudes, apply the capillary tube at a slight slant from the horizontal. Do not hold the capillary tube perpendicular because the capillary attraction will be negated by gravity. Obtain as much serum as possible in each tube. Then hold the capillary tube horizontally and dip both ends into the wax mixture provided in the small vial. The wax should extend at least  $\frac{1}{4}$  inch in each end of the tube. Replace the capillary pipette in the Wassermann tube and mail in the container furnished. At least two tubes of serum, taken simultaneously, should be submitted for examination.

The first two weeks of the primary lesion is the best time to secure reliable laboratory specimens. Negative results do not completely eliminate syphilis from the diagnosis, but the sooner after the appearance of the chancre that the examination is made, the more significant are the negative findings. In suspicious lesions three or four specimens should be obtained before a negative report is established. Nevertheless, all negative examinations should be followed by the submission of blood specimens for the Wassermann test extended over a period of at least three months, before syphilis is definitely ruled out.

*Cautions:* 1. Samples containing too much blood are useless for a darkfield examination since clotting may occur.

2. *For the protection of the physician rubber gloves should be used whenever chancres are handled.*

\* \* \*  
REPORT

The specimen of serum for darkfield examination received on \_\_\_\_\_ was \_\_\_\_\_  
for *Spirocheta pallida*.

(See reverse side)

Laboratories of Alabama State Board of Health

(Reverse side)

The first two weeks of the primary lesion is the best time to secure reliable laboratory specimens. Negative results do not completely eliminate syphilis from the diagnosis, but the sooner after the appearance of the chancre that the examination is made the more significant are the negative findings. In suspicious lesions three or four specimens should be obtained before a negative report is established. Nevertheless, all negative examinations should be followed by the submission of blood specimens for the Wassermann test extended over a period of at least three months, before syphilis is definitely ruled out.

The directions given on the request slips should be followed carefully. As much serum as possible should be obtained, the tubes sealed tightly with the wax and returned to the container. Excessive heat or cold should be avoided if it is necessary to store the specimens for a short period.

However, they should be shipped to reach the laboratory as soon as practical after being taken. *Spirocheta pallida* remains motile for sometime if the tubes are properly sealed, and extremes of heat and cold are avoided. There should be no portion of the State which is without a reliable darkfield service, even with the Birmingham and Montgomery laboratories alone making the examinations.

## BUREAU OF VITAL STATISTICS

Leonard V. Phelps, S. B. in P. H., Director

### TRENDS IN MORTALITY

Alabama, 1925-1935

The ten leading causes of death, according to final figures as shown in the Annual Report for 1935, in order of importance, were as follows:

Heart disease, pneumonia, nephritis, cerebral hemorrhage, accidents and other violence, tuberculosis (all forms), cancer (all forms), diseases of early infancy, influenza and homicide.

Practically the same causes have been listed among the first ten in importance for many years. The secular trend of the death rates from these causes is of interest. The trend for the following causes was upward during the eleven year period (1925-1935): Diseases of the heart, cerebral hemorrhage, cancer and homicide; downward for the remaining six causes.

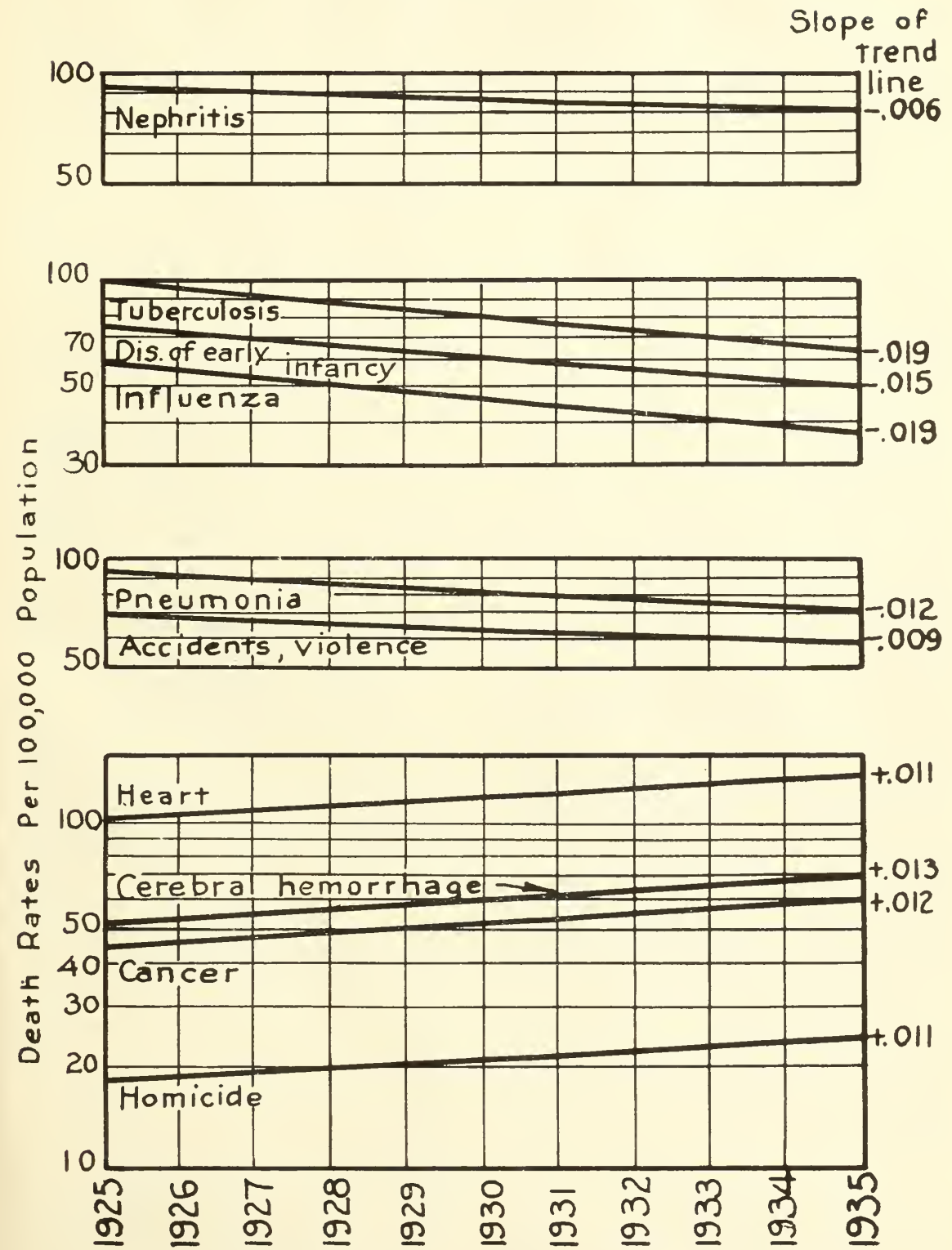
Upward trends are strikingly similar as the slope of the lines show. Two lines, exactly parallel to one another may be said to have the same slope and, therefore, the same rate of increase in the mortality rate to which they refer. The slope of the lines has been shown numerically by the figures shown to the right of each trend line.

In order to bring out the similarity in the upward or downward trend from the mortality rates of the causes given, the death rates have not been plotted. Instead, straight lines have been drawn representing the trend of the death rates. In the interpretation of the trend lines, it should be remembered that the steepness of the slope of the trend line affords an opportunity to compare the comparative rate of decrease or increase of mortality between two or more causes; the steeper the slope, the more rapid has been the increase or decrease.



TRENDS IN MORTALITY

Alabama, 1925-1935



## BUREAU OF PREVENTABLE DISEASES

D. G. Gill, M. D., Director

### THE REPORTING OF VENEREAL DISEASES

The new report form for venereal diseases which was introduced in Alabama early this year has met with a cordial reception at the hands of the practicing profession and there has been a considerable improvement in the reporting of cases. Most of the reports coming in are complete, but in some instances all the information requested is not checked. The item most often neglected is the question of previous treatment, although this is one of the most important questions on the card. To obtain a true picture of the spread of syphilis, cases coming under treatment for the first time are the most valuable index.

Another point which has probably not been made clear is that all cases of syphilis and gonorrhea should be reported on the venereal disease card and need not be reported on the weekly report card for the other communicable diseases. The same penalty envelope is to be used for both reports.

That other states will soon fall in line with Alabama in their reporting systems is evidenced by the recommendations of the State and Provincial Health Officers at their recent meeting in Washington. To quote from their report: "Notification of these diseases (venereal) is essential; but legally qualified physicians should have the privilege, subject to the approval of the health authority, of reporting any case by initials, date of birth, and community instead of by name and exact address, provided the name and address are immediately supplied if the patient fails to observe all precautions for protection of other persons, or lapses from treatment before being rendered permanently noninfectious."

This recommendation is met in Alabama's reporting system, although the follow-up of delinquent cases has not been pushed as energetically as it will be under the enlarged program to be inaugurated shortly.

---

### CONTINUOUS TREATMENT IN EARLY SYPHILIS

Early syphilis demands continuous treatment. Why? Because much better results

are obtained under continuous treatment than under intermittent or irregular treatment. There can be expected 80% to 85% disease eradication under the continuous scheme, against only 37% under the intermittent and 5% under the irregular methods. From the physician's standpoint the two most important points in treatment are control of infectiousness and eradication of the disease. Continuous treatment offers the best results in both.

What is continuous treatment? It is the giving of an autileutic drug each week for a period of 18 months to two years. There are no rest periods during treatment. A worth-while rule of thumb to follow is: "Treat the patient for one year after the Wassermann has been shown to be persistently negative." This will usually mean at least 18 months of treatment.

Arsenicals and bismuth given in alternating courses under the continuous scheme offer much better results than the arsenicals and mercury. There are three times as many infectious relapses under arsenical-mercury treatment as under arsenical-bismuth therapy.

---

## BUREAU OF HYGIENE AND NURSING

B. F. Austin, M. D., Director

### MAKING MATERNITY SAFE

Just as we all appreciate the fact that there are risks in nearly every phase of our every day life, we are likewise aware of the risks assumed by a prospective mother. Knowledge of prenatal and obstetric care is continually increasing and the morbidity and mortality rate is steadily declining where this knowledge is put in practice. Despite the high maternal death rate in Alabama (426 parturient mothers lost their lives in the State during 1936), we know how to reduce the risks of motherhood to a much lower point through the provision of proper maternal care. The chief reason so many mothers are dying is that they are not receiving the benefits of our knowledge.

Responsibility for the lack of proper maternity care is shared by the physician, the public and expectant parents. The physician who recognizes this responsibility and assumes his share of it will instruct prenatals in proper hygiene; examine them for the detection of any departure from good



health; and apply appropriate remedies. The rules of proper living in preparation for motherhood include plenty of fresh air, suitable food, outdoor exercise, adequate rest and freedom from care and worry. In providing for the technical side of maternity care the physician should be prepared constantly to detect abnormalities of the birth canal; overcome serious nausea of the early months of pregnancy; recognize and treat anemia and other important conditions that are detrimental to maternal health; make timely blood transfusions to prevent serious complications caused by hemorrhage and prevent puerperal infection.

By regular and frequent medical examinations during pregnancy untoward symptoms can be detected early and many complications avoided, especially the toxemias with their disastrous consequences. County health nurses are constantly urging expectant mothers to present themselves to their family physician or obstetrician for medical examination and prenatal advice.

Expectant mothers are continuously learning more about the importance of proper prenatal care. They will approach the physician in constantly increasing numbers so long as they are impressed with the value of such procedure and feel that the service is worth while. The expectant father is included as a factor in maternity care because he is the one who usually makes the initial contact with the physician when pregnancy of his wife is suspected. It is at the time of the first visit of the expectant father that the physician has the best opportunity to stress the importance of proper prenatal, delivery and postnatal care. It is the duty of the physician to equip himself so that he can render the best maternity care our present knowledge supplies when expectant parents apply for his services.

The responsibility of the public for maternity care is twofold; namely, to provide mothers with the medical care they should have and to educate prospective mothers and fathers to seek good care. The provision with medical care should include adequate medical schools with postgraduate courses and clinical facilities for thorough training of physicians.

Attention is directed to the report of the committee on maternal and child welfare of

the State Medical Association. This report was made at the meeting of the Association April 20-23, 1937 and will be published in this Journal at an early date. It contains a resume' of conditions that exist in the State together with recommendations of the committee for improving the situation.

---

## BUREAU OF SANITATION

G. H. Hazlehurst, C. E., M. C. E., Director

### MUNICIPAL SANITATION

WITH SPECIAL REFERENCE TO MAINTENANCE

Previous articles appearing in this Journal have dealt with the problem of municipal sanitation and its solution by the installation of a combination of disposal systems designed to meet both the physical and economic aspects of the particular municipality's problem. Such a combination may consist of a sewer system augmented by a system of septic tanks and pit privies. Irrespective of the type of sanitation employed, the responsibility for providing adequate protection for the entire population against the dangers arising from the improper disposal of human wastes has rightfully been placed upon the municipality itself.

The reaction of the governing bodies of the various municipalities to this line of reasoning is as yet unknown.

There is, however, still another phase of municipal sanitation which has not been dwelt upon at length but which deserves serious consideration if the problem is to be satisfactorily solved.

In planning and executing an organized municipal sanitation program, the element of time and its effect upon the type of sanitation installed is often overlooked. This omission may be disastrous and ultimately result in a complete breakdown of the entire system.

It must be recognized from the beginning that a pit privy system is, in a sense, a compromise between the Utopian ideal of complete sanitation by a water-carried disposal system and the existing economic and physical conditions.

Its limitations must be understood and provided for in the original plan or the public health protection afforded may, in only a few years, become relative.

The average life of the standard pit is from four to six years if the privy is properly maintained. At the end of this time a new pit may be provided and the privy moved, at a small cost, to its new location.

On the other hand, if the privy is abused, if garbage or trash is deposited in the pit, if necessary minor repairs are not made when needed, its period of usefulness is materially shortened, not through faulty construction but through neglect.

The importance of maintenance and the fallacy of relying upon individual initiative for proper maintenance must be recognized. It has been the painful experience of health department personnel to return to a town once provided with this type of sanitation and find that the protection no longer exists.

Just as the responsibility of the original construction rests upon the municipality, so rests the responsibility of proper maintenance. Only through organized effort is the maintenance of the sewer system secured. Why then should the care of a pit privy system be shifted or disregarded?

The solution of this phase of the problem of municipal sanitation may best be determined by each municipality individually. A sinking fund might be created by the collection of a regular inspection fee or a standard scale of charges for services rendered might be formulated. Whatever the solution, when the municipal machinery is set up for the installation of sanitation it should include a means for the continuation of such sanitation.

G. S. C.

## CURRENT STATISTICS

### \*PREVALENCE OF COMMUNICABLE DISEASES IN ALABAMA 1937

|                | Feb. | March | Estimated<br>Expectancy<br>March |
|----------------|------|-------|----------------------------------|
| Typhoid        | 9    | 8     | 14                               |
| Typhus         | 8    | 12    | 7                                |
| Malaria        | 100  | 82    | 76                               |
| Smallpox       | 6    | 0     | 27                               |
| Measles        | 38   | 69    | 1166                             |
| Scarlet fever  | 60   | 58    | 69                               |
| Whooping cough | 121  | 153   | 140                              |
| Diphtheria     | 74   | 48    | 77                               |
| Influenza      | 4233 | 7731  | 817                              |
| Mumps          | 186  | 210   | 165                              |
| Poliomyelitis  | 3    | 4     | 2                                |
| Encephalitis   | 4    | 2     | 4                                |
| Chickenpox     | 143  | 180   | 268                              |
| Tetanus        | 2    | 0     | 3                                |
| Tuberculosis   | 236  | 198   | 353                              |
| Pellagra       | 11   | 15    | 31                               |
| Meningitis     | 18   | 55    | 11                               |
| Pneumonia      | 665  | 936   | 534                              |
| Syphilis       | 1036 | 1381  | 166                              |

|                       |     |     |     |
|-----------------------|-----|-----|-----|
| Chancroid             | 5   | 10  | 7   |
| Gonorrhea             | 327 | 419 | 209 |
| Ophthalmia neonatorum | 0   | 2   | 2   |
| Trachoma              | 0   | 1   | 1   |
| Tularemia             | 2   | 5   | 1   |
| Undulant fever        | 2   | 1   | 1   |
| Dengue                | 0   | 0   | 0   |
| Amehic dysentery      | 1   | 0   | 0   |
| Rabies—Human cases    | 0   | 0   | 0   |
| Positive animal heads | 73  | 99  |     |

\*As reported by physicians and including deaths not reported as cases.

The Estimated Expectancy represents the median incidence of the past nine years. With the venereal diseases, clinic cases were not included prior to 1936.

## Medical News

*(Secretaries of county medical societies and other physicians will confer a favor by sending for this section of the Journal items of news relating to society activities.)*

Announcement has been made at the School of Medicine of the University of Alabama of three new teachers for next year. The most important change is in the Professorship of Anatomy. Dr. Phillip Brownell Armstrong will succeed Dr. Franklin S. DuBois, who leaves at the end of this session to accept a Fellowship in Internal Medicine at the Mayo Foundation in preparation for the practice of medicine. Doctor Armstrong is Assistant Professor of Anatomy at the Cornell Medical College in New York where he has taught gross anatomy for eleven years. The son of a New Jersey physician and one of a family of ten, all of whom are college graduates, three with advanced degrees, Doctor Armstrong took his B. S. degree from Massachusetts State College in 1921 and his M. D. from Cornell in 1926. Immediately after graduation he began his career of medical teaching and research at his Alma Mater. Every summer he has spent at the Marine Biological Laboratory at Woods Hole, except 1935, during which he worked at the Marine Biological Station at Roscoff in France. On leave of absence in 1934-35 he spent a year as a General Education Board Fellow at the Sir William Dunn Institute of Biochemistry at Cambridge University in England. Although only 39 years old, Doctor Armstrong is one of the seventy-five ranking zoologists of the American Zoological Society, a member of the American Association of Anatomists and the Harvey Society, the honorary scientific society of Sigma Xi and the honorary medical scholarship society of Alpha Omega



Alpha. Professor Armstrong has published numerous articles in zoological and anatomical journals. In the World War he was commissioned Second Lieutenant of Infantry. Mrs. Armstrong is the daughter of the Right Reverend Elmer N. Schmuck, Episcopal Bishop of Wyoming. After spending the coming summer at Woods Hole, Professor and Mrs. Armstrong will arrive in Tuscaloosa September first.

Dr. Cornelius S. Hagerty, Assistant Professor of Bacteriology and Pathology, will leave at the end of this session to enter upon the practice of medicine at his home in Chicago, and will be succeeded by Dr. Oscar O. Christianson, whose training and experience have been almost identical with Dr. Hagerty's. Born in Minnesota, Dr. Christianson took his B. A. from St. Olaf College in 1926. His first year in medical study was spent in the University of Berlin, after which he returned to this country and took his M. D. degree from Rush Medical College in 1932. After six month's internship in pathology and one year's clinical internship at St. Luke's Hospital in Chicago, he held the John Jay Borland Fellowship in Pathology at St. Luke's for one year. From July 1935, until March 1937, he served as Resident in Pathology in Presbyterian Hospital in Chicago, Associate in Pathology at the Cook County Hospital and Instructor in Pathology in the Rush medical faculty. Dr. and Mrs. Christianson are now spending six months in study in Norway and England, and will arrive in Tuscaloosa September first.

The third change brings a Southern doctor as Instructor in Physiological Chemistry and Physical Diagnosis, Dr. Benjamin Neely Miller, Jr., succeeding Dr. Wallace Marshall, who will return to Wisconsin to practice medicine with his father. Dr. Miller is also the son of a physician of Hickory Grove, South Carolina, and he took his college and medical courses at Duke University, from which he was graduated with the M. D. degree in 1935. Last year he served as medical interne in the Duke University Hospital, and this year as Assistant Resident in Medicine in the Duke Hospital and Assistant in Medicine in the Duke Medical School. He will arrive September first and will live at the home of Mrs. George Searcy with Dr. Herbert K. Fidler.

Dr. John Howard Ferguson, Assistant Professor of Physiology and Pharmacology for the last three years, will leave at the end of the year to accept a position as Assistant Professor of Pharmacology at the University of Michigan School of Medicine. Announcement of his successor will be made in the near future.

The freshman class for the School of Medicine is filled earlier this year than ever before, with forty-five men and five girls more carefully selected than ever. Approved applicants are now being entered on the reserve list. Every sophomore with a clear record so far in medical school has been transferred to one of the following approved four-year schools: Harvard, New York University, Long Island College, Johns Hopkins, Pennsylvania, Jefferson, Chicago, Northwestern, Colorado, Oklahoma, Washington University, Tulane, Vanderbilt, Emory, and South Carolina.

Dr. Herbert K. Fidler, Instructor in Bacteriology and Pathology for the last two years, has been promoted to be Assistant Professor in the same courses.

\* \* \*

The American Medical Golfing Association will hold its twenty-third annual tournament at beautiful Seaview Country Club, Atlantic City, New Jersey, on Monday, June 7, 1937.

Thirty-six holes of golf will be played in competition for the seventy trophies and prizes in the nine events. Trophies will be awarded for the Association Championship, thirty-six holes gross, The Will Walter Trophy; the Association Handicap Championship, thirty-six holes net, The Detroit Trophy; the Championship Flight, First Gross; thirty-six holes, The St. Louis Trophy; the Championship Flight, First Net, thirty-six holes, The President's Trophy; the Eighteen Hole Championship, The Golden State Trophy; the Eighteen Hole Handicap Championship, The Ben Thomas Trophy; the Maturity Event, limited to Fellows over 60 years of age, The Minneapolis Trophy; the Oldguard Championship, limited to competition of past presidents, The Wendell Phillips Trophy; and the Kickers Handicap, The Wisconsin Trophy. Other events and prizes will be announced at the first tee.

Dr. W. Albert Cook of Tulsa, Oklahoma,

is President and Dr. E. S. Edgerton of Wichita, Kansas, and Dr. Clarence Capell of Kansas City, Missouri, are vice-presidents of the American Medical Golfing Association, which was organized in 1915 by Dr. Will Walter, Dr. Wendell Phillips and Dr. Gene Lewis, and now totals 1,300 members representing every state in the union. The living past presidents include Dr. Thomas Hubbard of Toledo, Dr. Fred Bailey of St. Louis, Dr. Edward Martin of Media, Pa., Dr. Robert Moss of LaGrange, Texas, Dr. Charlton Wallace of New York, Dr. Will Walte of Evanston, Ill., and Charlottesville, Va., Dr. James Eaves of Oakland, Calif., Dr. Chester Brown of Danbury, Conn., Dr. Samuel Childs of Denver, Dr. W. D. Shelden of Rochester, Minn., Dr. Walter Schaller of San Francisco, Dr. Edwin Zabriskie of New York, Dr. Frank A. Kelly of Detroit, Dr. John Welsh Croskey of Philadelphia, Dr. Homer K. Nicoll of Chicago, Dr. Charles Lukens of Toledo, and Dr. M. M. Cullom of Nashville, Tennessee.

The Atlantic City Committee is under the general chairmanship of Dr. Walt P. Conaway, 1723 Pacific Avenue, Atlantic City, N. J., who so ably managed the 1925 Tournament at Seaview, and the 1935 Competition at the Northfield Club. He will be assisted by Drs. I. R. Beir, John Pennington, Karl Scott, Alfred Westney, and R. R. White.

All male Fellows of the American Medical Association are eligible and cordially invited to become members of the A. M. G. A. Write the Executive Secretary, Bill Burns, 2020 Olds Tower, Lansing, Michigan, for an application blank. Participants in the A. M. G. A. Tournament are required to furnish their home club handicap, signed by the club secretary. No handicap over 30 is allowed, except in the Kickers' (Blind Bogey). Only active members of the A. M. G. A. may compete for prizes. No trophy is awarded a Fellow who is absent from the annual dinner.

The twenty-third tournament of the American Medical Golfing Association at Seaview promises to be a pleasant affair. The club is one of the most elaborate in the country. The A. M. G. A. officers anticipate that some two hundred medical golfers from all parts of the United States will play in Atlantic City on June 7th.

## Truth About Medicines

### NEW AND NONOFFICIAL REMEDIES

The following products have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association for inclusion in New and Nonofficial Remedies:

**Acriflavine Neutral-Calco, Vaginal Capsules, 1/2 grain.**—Acriflavine Neutral-Calco (New and Nonofficial Remedies, 1936, p. 189) 1/2 grain (0.033 Gm.) in a one-half ounce soluble gelatin capsule containing an excipient the composition of which is sugar of milk, starch and talc. Calco Chemical Co., Inc., Bound Brook, N. J.

**Ringer's Solution.**—Aqueous solution containing, in 1,000 cc., sodium chloride 7.0 Gm. Ringer's Solution is used when chlorides and sodium, potassium and calcium have been diminished. It is indicated in all forms of dehydration but particularly in cases in which loss of gastro-intestinal secretions has resulted from vomiting, diarrheas, or fistulas. It is also used in acidosis or alkalosis. Ringer's Solution, marketed in Filtrair Containers, contains, in each 100 cc. sodium chloride-U. S. P. 0.7 Gm., potassium chloride-U. S. P. 0.03 Gm., and calcium chloride (anhydrous) 0.025 Gm. It is also marketed in bottles (Filtrair containers) of 500 and 1,000 cc. Hospital Liquids, Inc., Chicago. (J. A. M. A., March 6, 1937, p. 805).

**Chappel Liver Extract Concentrated (Intramuscular).**—A sterile aqueous solution, containing the nitrogenous, nonprotein fraction G of Cohn et al. obtained from fresh mammalian liver, preserved with phenol 0.5 per cent. It is proposed for intramuscular injection in the treatment of pernicious anemia. The product is supplied in 3.3 cc. vials. Chappel Bros., Inc., Rockford, Ill. (J. A. M. A., March 27, 1937, p. 1034.)

**Diphtheria Schick Test Toxin, Diluted Ready for Administration**—Gilliland (New and Nonofficial Remedies, 1936, p. 409).—This product is also marketed in packages containing sufficient material for 100 tests. As a means of control, the Schick Test Control is supplied in packages containing sufficient material for ten, twenty-five, fifty and 100 control tests. The Gilliland Laboratories, Inc., Marietta, Pa.



# THE JOURNAL

OF

## The Medical Association of The State of Alabama

Published Under the Auspices of the Board of Censors

Vol. 6, No. 12

Montgomery, Alabama

June 1937

### THE MODERN CONCEPTION OF CONGESTIVE HEART FAILURE\*

By

W. GROCE HARRISON, JR., M. D.  
Birmingham, Ala.

Concerning the various circulatory changes occurring in disease none has become better understood in the past few years than those dealing with congestive heart failure. Among the earlier observations were those of Hope, Cohenheim, McKenzie, Welch and Starling. These were carried on with the later work of Eppinger, Schwartz, Eyster, Burwell, Blumgart, Weiss and others; and finally culminated in a recent book by Dr. Tinsley Harrison, dealing in detail with experiments carried out by himself and his colleagues on this subject. As a result, there has gradually come into reach of the clinician a unified knowledge of this condition, a breadth of vision, confidence and understanding that was quite beyond his reach a few short years ago. The patient with congestive heart failure, when seen by the physician, is in a definite stage not only of a pathological but also of a profound and fluctuating physiological disturbance and it is only by a knowledge of the nature and course of these physiological phenomena that one is able to evaluate the changing status of this individual. It is the purpose of this discussion to try to summarize some of the major changes taking place in congestive heart failure and to review for you the recent advances concerning the mechanism of the major signs and symptoms.

That various disorders such as rheumatic fever, syphilis, arteriosclerosis, hypertension, hyperthyroidism and others are common causes of cardiac enlargement has been long recognized. On the other hand, much dispute has arisen as to how this enlargement is brought about. Many clinicians be-

lieved that in the absence of valvular disease enlargement of the heart came about as a result of disease of the cardiac muscle, even though this disease in many cases could not be found. At the present time the view most widely accepted by the workers in this field is that the heart dilates because of increased work. This was a fundamental physiological law established by Starling many years ago. He recognized that the strength of contraction of the muscle fiber is dependent on the initial length of the fiber. It is now thought that in response to increased work the heart dilates and this in time tends to produce hypertrophy, the exact mechanism of which still remains somewhat obscure.

In a case of hypertension, as the left ventricle becomes dilated, due to fatigue of increased work, the pressure of the left ventricle becomes increased. This results gradually in a rise in pressure in the left auricle. As a result, the pulmonary venous pressure rises, there is a mild degree of pulmonary congestion, a diminution of the vital capacity and dyspnea. At this point the patient is experiencing symptoms due to left sided heart failure. There is an increase in the blood volume in the lungs and a decrease in the pulmonary circulation time, and no change or a slight decrease in the amount of blood pumped by the left ventricle. As a result of the rise in pulmonary pressure, the right ventricle becomes dilated. This in time may lead to hypertrophy, an increased right ventricular pressure, a rise in pressure in the right auricle which results in a rise in venous pressure of the systemic circulation and the common cardiac signs and symptoms of congestive heart failure ensue. Formerly, it was thought in England and this country that these symptoms were due largely to an insufficient blood supply to the tissues as a result of a diminished cardiac output. At the present time, however, the view held on the continent and now being accepted in

\*Read before the Association in annual session, Birmingham, April 20, 1937.

this country largely on the basis of work of the past few years is that these symptoms are primarily due to a result of back pressure, or, in other words, largely due to an increase in the venous pressure of the pulmonary and systemic circulation. Before proceeding with this phase of the discussion in detail, let us take up some of the other major physiological disturbances.

There is at present much agreement as to the volume of blood in the body during heart failure. Repeated observations in the hands of different competent observers have shown that the amount of blood in heart failure is considerably increased. Keith, Rountree and Gerathty, Brown and Rountree and others, using various dyes, found values of 75 to 95 cc. of blood per kilo. of body weight in the normals as compared to 120 cc. per kilo. of body weight in those with congestive heart failure. The blood volume is therefore considerably increased. It has also been shown that digitalis in many cases is followed by a decrease in blood volume; and more recently Evans and his co-workers, using a dye called T-1824 have shown a definite decrease in plasma volume following the administration of salyrgan. We are all familiar with the chronic passive congestion and engorgement of blood seen in the organs of patients dying of congestive heart failure. The origin and fate of this increased amount of blood is as yet unknown.

It seems definitely established that the velocity of the blood flow is markedly diminished in this condition; or, in other words, the circulation time is prolonged. The observations of Blumgart and Weiss, which consisted in injecting radium emanation into a vein, show definitely that the time required for the blood to flow from a peripheral vein to the right auricle and also from the right auricle to the peripheral arteries in patients with congestive heart failure is greater than that in normal individuals. They also showed that this change usually preceded the change in venous pressure, an observation which is of considerable interest because it is known that dyspnea and a decrease in vital capacity usually precede the change in the systemic venous pressure. More recently, Candel and Rabinowitz have measured the circulation time by injecting saccharin into a peripheral vein and determining the time that

elapses before the patient experiences a sweet taste in his mouth. They found that the mortality rate increases as the velocity of blood flow diminishes and that the circulation time is of greater significance in prognosis than the venous pressure.

Due to the difficulty of securing a method that is accurate, studies of the cardiac output have given varying results in the hands of different observers. As has been mentioned, the idea was widely held that the symptoms of congestive heart failure are due largely to an insufficient blood supply to the organs receiving blood from the heart as a result of a diminished cardiac output. This idea has been largely disproven by Harrison and also Grollman. We know at the present time that, in general (many cases excepted), there may be a slight decrease in the cardiac output during heart failure. This change, however, is not constant, does not go parallel with the severity of the disease, and does not show a parallel relation with the improvement of the patient under modern drug therapy. Digitalis, for instance, may be followed by an increase, decrease or no change in the output of blood from the heart. Therefore, even though the cardiac output may be slightly decreased in some instances, this decrease is not constant and is not the major cause of the symptoms of these patients.

We will now proceed to take up the various factors concerned in the production of these symptoms and this is the phase of the subject with which we have been more actively interested and associated. In the first place, it must be appreciated and understood that the venous pressure is the common denominator of congestive heart failure. Even though frequent determinations of venous pressure are not always necessary, it is of fundamental importance to understand venous pressure in order to appreciate the physiology of heart failure.

Dyspnea on exertion is usually the first symptom of which the patient with early congestive heart failure complains. In a recent series of experiments, Harrison and his colleagues have shown that dyspnea on exertion is most likely due not to chemical changes in the blood, as was formerly thought, but to reflexes arising from the moving muscles stimulating respiration, and also to a reflex stimulation of respiration from an increase in systemic as well as



pulmonary venous pressure. In a series of anesthetized dogs, one of the hind legs of the dog was amputated at the hip joint and all connections between the head and trunk except the sciatic nerve and the femoral blood vessels were severed. After the femoral blood vessels were clamped, there was an increase in breathing following passive movements of the leg; and this increase was abolished by section of the vagus nerve. This experiment demonstrated that the increase in breathing was of nervous rather than chemical origin, for chemical changes had been ruled out in previous experiments. In still another series of experiments it was demonstrated that an increase in venous pressure caused a reflex stimulation in breathing which was absent when the vagus nerve was cut. This was of special interest to us because Bainbridge, long ago, had demonstrated that a rise in venous pressure causes a reflex increase in pulse rate. It was also shown that an increase in pulmonary venous pressure and the production of pulmonary edema experimentally were each followed by dyspnea and a decrease in vital capacity and this dyspnea was abolished by section of the vagus nerve. In another series of experiments, inflation of a small balloon pushed through the external jugular vein into the right auricle in dogs caused a marked increase in respiration which was abolished by section of the vagus nerve. Thus it was felt that a patient gets short of breath on exertion, first because of reflex stimulation of respiration from moving muscles and, second, because of reflex stimulation of breathing due to extra increase in venous pressure on exertion. The person with cardiac failure already had a venous pressure the upper limit of, or slightly above, normal; and a slight exertion caused a reflex increase in respiration from the moving parts, also a reflex increase in respiration due to an extra increase in venous pressure and dyspnea therefore resulted.

As the heart failure progresses dyspnea on exertion becomes more pronounced and orthopnea ensues; or in other words, the patient assumes the upright position in order to breathe more comfortably. Various theories for this interesting phenomenon have been advanced. Some observers felt that a decrease in anoxemia of the respiratory center and a better oxygenation of the arterial blood leaving the lungs were large-

ly responsible for the greater comfort in breathing that a patient with cardiac disease exhibits in the upright position. Others thought that the greater use of the accessory muscles of respiration, the accumulation of blood in the lower extremities leading to diminished pulmonary congestion and a decrease in the work of the heart along with the relief of the venous congestion of the brain and of the respiratory center by the action of gravity were the fundamental factors responsible for the sitting posture in orthopnea. Different observers have reported an increase in vital capacity in the sitting position as compared with the recumbent posture; but there was another factor in orthopnea that had not been elicited. It seems now definitely established from observations carried out by the author that the patient breathes better in the sitting position largely because, first, the vital capacity is greater in this position, and, second, because the cisternal pressure in the region of the medulla is markedly decreased in this position.

The marked elevation in systemic venous pressure in congestive heart failure has been definitely demonstrated. Repeated observations have shown that in right sided congestive heart failure, the systemic venous pressure is elevated. Thus in the normal the average venous pressure in the recumbent position is about 60 mm. of water, but this pressure in the patient with congestive heart failure may run from 200 to 400 mm. of water. It has likewise been demonstrated that the venous pressure runs parallel to the degree of congestive heart failure. It rises as the vital capacity diminishes. As the heart decreases in size under treatment, the venous pressure falls in almost a parallel relation. It decreases as the edema diminishes and the edematous weight of the cardiac patient decreases. It likewise diminishes as the urinary output increases, and the decrease of venous pressure slightly precedes the increase in urinary output. The various procedures and treatments, such as paracentesis, venesection, digitalis, salyrgan, theophyllin, etc., that influence and help to ameliorate the cardiac patient's condition are followed by a decrease in venous pressure even though the effect may not be directly on the venous pressure. The venous pressure in a patient with congestive heart failure under condi-

tions of exertion, excitement, cough, straining, etc., behaves very differently from that in normal individuals; and it is this increase in venous pressure which is a direct result of the heart failure that is responsible for the symptoms of failure.

Curiously enough, in spite of repeated observations on venous pressure carried out by Eyster and others within the last 20 years, it is only within the last four years that the marked increase in spinal fluid pressure in these patients with increased venous pressure has been demonstrated in this country. The spinal fluid pressure runs parallel with the increase in venous pressure and, indeed, quite a number of years ago Weed and Hughson showed the direct relationship in dogs between the spinal fluid pressure and cerebral venous pressure. This pressure in some cases runs as high as 600 mm. of water, and it is difficult to understand why so simple an observation has not been made before.

Cheyne-Stokes respiration is one of the next symptoms that the patient with heart failure is apt to develop. It is known from experiments of Eyster and Cushing that when spinal fluid pressure was increased artificially, alternating waves of respiration were produced. These were associated with alternating waves of arterial blood pressure and spinal fluid pressure, and Cheyne-Stokes respiration ensued. Such conditions were seen in states of increased intracranial pressure such as that caused by brain tumor, cerebral hemorrhage and uremia. It is now thought by the author, but not proven, that Cheyne-Stokes respiration may be initiated by the alternating waves of arterial and increased spinal fluid pressure as a direct result of increased venous pressure. It is his opinion that Cheyne-Stokes respiration is a compensatory phenomenon in which the individual unconsciously attempts to keep his arterial blood pressure ratio level above that of the rapidly rising spinal fluid pressure in order to keep the cerebral circulation intact and to prevent prolonged cerebral anemia. Spinal drainage and venesection have been followed by a fair degree of success in treating certain patients with congestive heart failure and in some cases a fall in venous pressure has ensued. It is worth mentioning that the increased arterial blood pressure in certain advanced cases of con-

gestive heart failure may be partially due to the increased spinal fluid pressure caused by increased venous pressure.

Knowledge concerning the edema of heart disease has now reached an advanced stage. Undoubtedly the main causative factor in the edema of heart failure is the increased capillary pressure brought on by increased venous pressure. Krogh, Landis and Turner have demonstrated that edema resulted when the venous pressure was greater than 15 cc. of water. They likewise found that the amount of fluid loss from the blood was much greater at higher venous pressures. Another important factor present in some cases is the decrease in the plasma proteins or serum albumin. Other minor factors that may, in some cases, influence edema are posture or hydrostatic pressure, malnutrition resulting in nutritional edema, changes in the lymph flow, elasticity of tissues, changes in tissue pressure, changes in temperature, increase in capillary permeability, and the salt and water intake.

Now let us review briefly these changes that we have just discussed. As the heart enlarges, because of dilatation due to disease, increased work, or both, the left ventricle hypertrophies. This is followed by an increased left auricular pressure. Then an increased pulmonary venous pressure results. At this point, pulmonary congestion occurs, there is a decrease in the vital capacity and a reflex stimulation of respiration causing dyspnea. After so long a period of time, due to increased pulmonary venous pressure the right ventricle hypertrophies, a rise in the right auricular pressures occurs, an increased venous pressure of the systemic circulation follows. At this point the blood volume is increased, the circulation time is decreased, and the cardiac output may show a slight decrease or no constant change. As the patient exercises, there is a reflex stimulation of respiration from the moving muscles, a reflex stimulation from the extra pulmonary congestion with extra increased pulmonary venous pressure and a reflex stimulation of respiration from the extra increase in systemic venous pressure. Eventually the patient, because of persistently elevated venous pressures in both pulmonary and systemic circuits, becomes short of breath at rest. There follows a tendency for the individual



to assume the orthopneic position due to the increased vital capacity, the decreased volume of blood in the lungs and a decreased cisternal pressure in the region of the medulla in this position. As the spinal fluid pressure rises, directly in proportion to the venous pressure, the arterial blood pressure usually takes an extra rise and in order to keep the cerebral circulation intact, alternating waves of arterial blood pressure and spinal fluid pressure follow and Cheyne-Stokes respiration ensues. Likewise, due to increased capillary pressure, a result of increased venous pressure, edema results. Long before this point, due partly to increased venous pressure, tachycardia has occurred.

As the patient with congestive heart failure improves under satisfactory drug therapy, a reversal of these changes takes place. Then the patient improves in direct proportion to the fall in systemic and pulmonary venous pressures, until, at last, the individual may be able to lead a longer, even though curtailed, more useful life, until there eventually follows another break with these physiological changes again.

722 S. 20th Street.

#### BIBLIOGRAPHY

1. Blumgart, H. L.; and Weiss, S.: Clinical Studies on Velocity of Blood Flow; Pulmonary Circulation Time; Minute Volume Blood Flow Through Lungs, and Quantity of Blood in Lungs, *J. Clin. Investigation* 6:103 (Aug.) 1928.
2. Brown, G. E.; and Rowntree, L. G.: Volume and Composition of Blood, and Changes Incident to Diuresis, in Cases of Edema, *Arch. Int. Med.* 25:129 (Jan.) 1929.
3. Candel, S.; and Rabinowitz, M. A.: Blood Velocity Rate and Venous Pressure in Prognosis of Heart Disease, *Ann. Int. Med.* 10:1000, 1937.
4. Cushing, H.: Some Experimental and Clinical Observations Concerning States of Increased Intracranial Tension, *Am. J. M. Sc.* 124:325, 1902. Blood Pressure Reaction of Acute Hemorrhage, *Am. J. M. Sc.* 125:1017, 1903.
5. Evans, W. A.; and Gibson, J. G.: Blood Volume in Diuresis, *Am. J. Physiol.* 118:259, 1937.
6. Eyster, J. A. E.: Clinical Aspects of Venous Pressure, N. Y., The Macmillan Co., 1929. Clinical and Experimental Observations upon Cheyne-Stokes Respiration, *J. Exper. Med.* 8:565, 1906.
7. Grollman, A.; et al.: Studies in Congestive Heart Failure; Critical Study of Methods for Determining Cardiac Output in Patients With Cardiac Disease, *J. Clin. Investigation* 12:721 (Sept.) 1933.
8. Harrison, T. R.; Failure of the Circulation, Baltimore, Williams & Wilkins Co., 1935.
9. Harrison, T. R.; et al.: Congestive Heart Failure; Mechanism of Dyspnea on Exertion, *Arch. Int. Med.* 50:690 (Nov.) 1932.

10. Harrison, W. G., Jr.: Cerebrospinal Fluid Pressure and Venous Pressure in Cardiac Failure and Effect of Spinal Drainage in Treatment of Cardiac Decompensation, *Arch. Int. Med.* 53:782 (May) 1934. Cisternal Pressure in Congestive Heart Failure and Its Bearing on Orthopnea, *J. Clin. Investigation* 12:1075 (Nov.) 1933. Clinical Studies in Venous Pressure and Their Significance, *South. M. J.* 29:1198 (Dec.) 1936.

11. Keith, N. M.; Rowntree, L. G., and Geraghty, J. T.: Method for the Determination of Plasma and Blood Volume, *Arch. Int. Med.* 16:547, 1915.

12. Krogh, A.; Landis, E. M., and Turner, A. H.: Movement of Fluid Through Human Capillary Wall in Relation to Venous Pressure and to Colloid Osmotic Pressure of Blood, *J. Clin. Investigation* 11:63 (Jan.) 1932.

13. Starling, E. H.: Linacre Lecture on the Law of the Heart, London, 1918.

14. Weed, L. H.; and Hughson, W.: Intracranial Venous Pressure and Cerebrospinal Fluid Pressure as Affected by the Intravenous Injection of Solutions of Various Concentrations, *Am. J. Physiol.* 158:101, 1931.

15. Youmans, J. B.: Edema, *J. Tennessee M. A.* 29:270 (July) 1936.

#### ANGINA PECTORIS\*

By

CLARENCE R. BENNETT, A. M., M. D.  
Eufaula, Alabama

During the past twenty years much has been learned concerning coronary artery disease. This includes coronary arteriosclerosis, coronary occlusion and the clinical syndrome known as angina pectoris. This clinical syndrome, angina pectoris, is not a disease in the true sense of the word, but is usually defined as a syndrome characterized by paroxysmal attacks of precordial or pectoral pain, syncope and a sensation of intense anxiety. Its principal symptom is pain, which begins in the chest, just to the left of the sternum, radiates into the neck, down the left arm to both arms, and results from pathology within the heart, aorta or coronary arteries. In most instances the principal pathology is a coronary arteriosclerosis. Levine states that "angina pectoris is a clinical entity, in that when properly understood it can be diagnosed accurately, the subsequent course of the disease can most times be predicted and the pathology producing the pain and resultant death, foretold."

To properly understand the symptoms, such as pain, its radiation and the mechan-

\*Read before the Association in annual session, Birmingham, April 20, 1937.

ism producing these symptoms, may we review briefly the anatomy of the coronary arteries and the nerve supply to the heart.

The coronary arteries are two in number, the right and left branches. These arise from the aorta just above the semilunar segments of the aortic valve and pass down over the surface of the myocardium giving off branches to the heart muscle and the interventricular septum. These arteries anastomose. Due to this anastomosis we see cases of coronary occlusion of some of the small branches recover, as the circulation is taken up through the anastomosing vessels.

The nerves of the heart are, first, the vagus, which contains the depressor nerve, a branch of the accessory; and, second, the sympathetics.

The vagus is the inhibitor nerve of the heart, the sympathetics the accelerator.

As the vagus (and the depressor nerve combined) descends in the neck it gives off an auricular branch which goes to the ear, and branches to the pharynx. It then sends branches to the trapezius and sternomastoid muscles. It also gives branches to the second and third cervical nerves. It continues into the chest and unites with the sympathetics to form the superficial and deep cardiac plexuses.

The sympathetic nerves come down the neck from the superior and inferior cervical sympathetic ganglia. Branches from these sympathetic nerves pass to the upper five thoracic spinal nerves and to the eighth cervical nerve. The sympathetics then pass into the chest and unite with the vagus to form the superficial and the deep cardiac plexuses. From these superficial and deep cardiac plexuses fibers pass to the myocardium and coronary arteries, and it is through this complex nerve supply and its connections that we get such a varied distribution of pain in angina. Through the vagal branches given off to the ear, postoccipital regions and pharynx, we get our distribution of pain to these regions. Through the first, second, third and eighth cervical nerves and the upper two thoracic spinal nerve the pain of angina is referred into the arm, passing through the medial cutaneous and ulna nerves; and through the upper five thoracic nerves it is referred to the chest wall.

*The Mechanism*, which produces the pain

and the distribution of the pain as we have outlined, has been theorized upon greatly. The present day idea that it is an ischemia or anoxemia of the cardiac muscle is probably the correct one. This may be produced in several ways:

1. A coronary sclerosis—This is present in 99% of the cases of angina pectoris, and as a result of the narrowing of the lumen of the coronary artery the amount of blood to the heart muscle is cut down and an ischemia results. There is also a certain amount of evidence to show that some of the attacks are due to a coronary spasm.

2. Aortitis—By an aortitis involving the first portion of the aorta the openings of the coronary arteries may be partially occluded and because of the low blood pressure during diastole an insufficient amount of blood reaches the heart.

3. Certain diseases, such as pernicious anemia, which furnish a deficient amount of oxygen to the heart muscle. These cases happen only occasionally.

Under normal conditions the blood supply to various sections of the heart muscle is ample to meet its needs, but if for any reason the supply to a certain area is diminished this area becomes overtaxed and the pain of angina will appear.

*Etiology*—There is no definite cause of angina pectoris, but many causative factors are definitely related to its development. Among these are:

1. Heredity—This condition occurs much more frequently in certain families than in others. This may be due to the fact that there is a predisposition in these families for the structure of the coronary vessels to be of an inferior grade, or it may be that there is present a slight abnormality in the course of the vessels which would overthrow more strain on one part.

2. Sex—It occurs three to four times more frequently in men than in women.

3. Body Build—It is more frequently seen in men who are slightly overweight, strong and well built. Physicians are frequently victims.

4. Age—The average is between fifty and sixty years.

5. Syphilis produces about four per cent of the cases by producing an aortitis.

6. Diabetes—Just as diabetes produces vascular changes elsewhere in the body, it frequently produces a coronary sclerosis



and attacks of angina follow. The last three cases we have had have been diabetics.

7. Other diseases, such as chronic lead poison, Buerger's disease, pernicious anemia, hyperthyroidism, and paroxysmal rapid heart action, sometimes cause attacks of angina either by producing a sclerosis of the coronaries, or by producing an anoxemia of the heart muscle as in the case of pernicious anemia.

Although these factors help in the production of angina it is quite possible that the endocrine system, such as the adrenals and thyroid, may have much to do with the actual bringing on of an attack. This is evidenced by the fact that a small dose of adrenalin will nearly always bring on an attack in a person who suffers with angina and also by the fact that operations on the thyroid gland, with resultant relief of symptoms, seem to prove that in some way there is a relationship between these glands and the attacks of pain.

*Pathology*—The pathology is practically always that of a coronary sclerosis, but in an occasional case it may be a myocarditis or an aortitis or a combination of the two.

*Symptoms*—A recent case which we have had illustrates the symptoms seen in a typical case of angina:

Mr. O. F. B., white male, age 54, superintendent of a cotton mill at Eufaula, called me at three P. M., February 1st. On arrival at his home we found him sitting in a chair complaining of severe pain just to the left of his manubrium sterni, which pain radiated up into his neck and down into his left arm and hand especially to the ring and little fingers. The pain was severe as evidenced by the fact that he said he could not stand it unless he was given ease. He was anxious and very quiet and told us that he felt that he might die. His face was white and covered with drops of sweat. History revealed that the attack had come on only a few minutes before and followed the exertion of walking up the stairway in his mill. His pulse rate was 78, full and regular. Blood pressure was 180-110. The heart sounds were clear and there were no murmurs or arrhythmias. With these typical symptoms a diagnosis of angina was made and he was given orally a 1-100 nitroglycerin tablet. In a few minutes he was greatly relieved and after repeating this same dose of nitroglycerin 15 minutes later he was completely easy. This illustrates the usual typical attack, but unfortunately many of the cases are not typical.

*The Diagnosis of Angina Pectoris* is not always easy, and oftentimes is very difficult. This is usually because the pain is

mild and even simulates a fullness similar to indigestion or it may radiate to some distant region and simulate some other malady, such as gallbladder disease.

In making a diagnosis the following points are of importance:

1. The History—A complete history as to the type pain, its location, severity and time of onset, whether at rest after eating or exertion, are important. Anginal pain generally comes suddenly, usually after effort such as walking. Frequently, it also comes on after a heavy meal or any excitement.

2. Physical Examination—In many cases of angina, it is impossible to find anything which varies from the normal. The blood pressure is often normal and the pulse regular and full, but in other cases a careful check will show generalized arteriosclerosis, sclerosis of the optic vessels, slight enlargement of the heart, elevated blood pressure, extrasystoles or some other finding to point toward cardiac pathology.

3. Electrocardiography—There is nothing definite about cardiograms made on patients with angina. These may vary greatly. Many of them are normal and may be normal during an attack. However, this is an important diagnostic help because frequently there will be some variation from the normal which will at least call attention to the fact that the heart is not a normal heart and angina will be suspected.

4. Tests employed when still in doubt about the diagnosis—

1. Exercise test—The patient is asked to exercise, such as walking up stairs or to hop on one foot to see if effort will bring on an attack.

2. Adrenalin test—0.3 cc. adrenalin is given and in most cases of angina an attack will be brought on in 5-15 minutes. This test should not be used unless it is a questionable case; and always amyl nitrite or nitroglycerin should be on hand to stop the attack.

*Differential Diagnosis*—Angina frequently simulates certain other diseases and a few of these with their differential points are:

1. Patients with organic heart disease, either valvular or hypertensive. Usually in these cases the pain is at the apex and does not radiate.

2. Cardiac neuroses, hysteria or neuro-circulatory asthenia. These cases especially in women may simulate angina. Usually there is an absence of any signs of organic heart disease such as enlargement or hypertension, and the pain usually does not radiate into the neck and arms.

3. Gallstone. Here the x-ray will help to rule out possible gallbladder pathology.

4. Diseases of the spinal cord or pain from the spinal nerve roots, such as neuralgia, herpes zoster. These cases are not relieved by the nitrites.

5. Anemias, such as pernicious anemia. Here the blood picture clears the diagnosis.

6. Coronary occlusion. The pain of coronary occlusion is more severe, lasts longer, and frequently comes on while the patient is at rest. The pain is not relieved by the nitrites but requires morphine, and the other symptoms of occlusion, such as slight fever, fall in blood pressure, leukocytosis, friction rub and the changes in the cardiogram typical of occlusion, differentiate the two conditions.

*Prognosis*—In angina the prognosis is very uncertain. The fact that the attack is light does not mean that the pathology is not extensive and that the patient may not have at any time a sudden severe fatal attack. This fact should be fully realized so that all cases may be advised properly as to rest, exercise and other measures of treatment. One authority stated that the average length of expectancy for these patients after the attacks had begun was four to five years, but some of the cases lived much longer. About 50% of these cases die suddenly with a coronary occlusion, part of them suddenly as a result of ventricular fibrillation and some of a result of the vagal inhibitory mechanism in the heart. A certain percentage of the cases, of course, die from some intercurrent disease as pneumonia and diabetes.

*Treatment*—The treatment of angina pectoris consists of a mode of life rather than a therapeutic system. The principles usually followed are:

1. Rest—This is one of the most effective means of restoring the cardiac circulation and controlling the pain. Usually, we think, a complete rest of from four to six weeks is essential but some advise, in very mild cases, to just slow the patient down in his

exercise so that the attacks do not appear. After getting up from his four to six weeks' rest, the patient should be advised to walk slowly, never tire himself, never let himself get constipated so that straining at stool will be necessary, try not to worry and to lie down for a two hour period after his mid-day meal.

2. Diet—He should be on a simple, well balanced diet, avoid overeating, and eat slowly.

3. Medicines—

(a). Vasodilators—Of these, without a doubt, nitroglycerin is the choice and it should be given in tablets 1/100 or 1/150 and taken for every attack and repeated as often as necessary. We have recently had one case in which the attacks came even while the patient was in bed, every 20 minutes to two hours for a period of two weeks and nitroglycerin was given with each attack. Incidentally, this patient was a heavy smoker and his attacks did not stop until smoking was discontinued. While we do not know whether smoking helps produce the condition, we do feel that it certainly helps to bring on an attack and, therefore, should be stopped in these patients.

Amyl Nitrite is also a helpful vasodilator.

The only other vasodilator that we use is aminophyllin. Perhaps the other products similar to this are just as effective but we have had no experience with them. We do feel that this drug given regularly in combination with a small dose of phenobarbital, say one and one-half grains of aminophyllin and one-half grain of phenobarbital, three times daily before meals with water has been most effective in lessening the attacks in several recent cases.

(b). Laxatives—Some mild laxative should be used as needed to prevent constipation. We think caroid and bile salts tablets are a good laxative.

A patient should always carry nitroglycerin or amyl nitrite to use in case an attack comes on while he is away from home. In addition to this a patient should be warned to leave off certain drugs which might begin an attack, such as adrenalin and thyroid. He should receive a careful, thorough physical examination and any anemia, obesity, hypertension or diabetes found should be treated appropriately. One thing relative to diabetes is to be careful not



to reduce the blood sugar too low as there is a danger of depriving the heart muscle of its proper supply of nutrition. Many of these cases probably will not need insulin.

*Surgical Treatment*—We only wish to mention the fact that during the past 10 to 15 years much has been done or at least a beginning has been made toward the help of these cases with surgery. Partial and total removal of the thyroid, alcohol injection of the upper four or five dorsal sympathetic ganglia, and cervical sympathectomy have been tried and many cases helped. Probably before many years this may be the regular approach in the treatment of these cases.

In conclusion, we wish to stress one final point, namely, that patients should be thoroughly made to understand the seriousness of their condition. They should be reassured that they can improve, go on for a long time but that they must learn to play the game and live within certain restrictions. These instructions and a cheerful encouragement on the part of the physician will help many of these cases to carry on for a long while.

BIBLIOGRAPHY

1. Blumgart, H. L.; et al.: Treatment of Angina Pectoris and Congestive Failure by Total Ablation of Normal Thyroid; Results in Arteriosclerotic Heart Disease, *Am. Heart J.* 10:596 (June) 1935.  
2. Burnett-Clough Turrill: Pain and Pain Equivalents in Heart Disease, *Ann. Int. Med.* 10:1156, 1937.  
3. Cunningham, D. J.: Textbook of Anatomy, ed. 6, Baltimore, William Wood & Co. (Division of Williams & Wilkins Co.), 1931, p. 876.  
4. Gorham, L. W.: Angina Pectoris, in Blumer, George, ed., *Bedside Diagnosis*, Philadelphia, W. B. Saunders Co., 1928, vol. 2, p. 587.  
5. Lambert, Alexander: Angina Pectoris, in Tice, Frederick; et al., *Practice of Medicine*, Hagerstown, W. F. Prior Co., 1933, vol. 6, p. 253.  
6. Levine, S. A.: Clinical Heart Disease, Philadelphia, W. B. Saunders Co., 1936, p. 101.  
7. Roberts, S. R.: Nervous and Mental Influences in Angina Pectoris, *Am. Heart J.* 7:21 (Oct.) 1931.  
8. Smith, F. M.: Angina Pectoris, in *Cyclopedia of Medicine*, 1936, vol. 3, p. 347.  
9. Smith, K. S.: Treatment of Angina Pectoris, *Internat. M. Digest* 27:3, 1935.

*Cystic Teratomata*—Because cystic teratomata are prone to give rise to serious complications and to develop malignancy, the risk of operation is ordinarily much less than their sequelae. Hence, the tumors are better out than in, and surgery is a good investment for these patients.—*Newell—J. Tennessee M. A., May '37.*

THE FUNCTIONAL PATIENT\*

By  
JAMES B. McLESTER, M. D.  
Birmingham, Ala.

All physicians see a great many patients who tell of various symptoms but who, no matter how carefully examined, seem to have no demonstrable organic disease and who do not readily fall into any of the described types of mental disorder. There is a great inclination, on the part of the physician, to be annoyed by these people, to disregard their complaints, to say that the discomforts are imagined and should be forgotten. An attempt has been made to demonstrate the source and consequent reality of these symptoms.

Of one thousand consecutive individuals, seen prior to December 1, 1936 by Dr. J. S. McLester and the author, as is shown in Table 1, 28.3% could not be classified into any of the clear cut types of mental disorder nor yet did they have organic disease that could be demonstrated by careful examination. Many more had complaints far out of proportion to their organic disease, but they are not included in this number.

TABLE 1  
TYPES OF DIAGNOSIS MADE ON ONE THOUSAND  
CONSECUTIVE PATIENTS

|                          |      |        |
|--------------------------|------|--------|
| Organic Disease.....     | 697  | 69.7%  |
| True Mental Disease..... | 20   | 2.0%   |
| "Functional" .....       | 283  | 28.3%  |
| Total .....              | 1000 | 100.0% |

With this large proportion of patients telling of many discomforts for which no causative disease can be found, it is reasonable to assume that (1) there is a disease process which has not been detected in each of these people or (2) some other mechanism, not an organic disease, is operating to produce the symptoms. In view of the fact that these patients were examined rather completely, the first supposition seems unlikely. On turning to the second possibility, one finds a quite illuminating array of facts. In short, it can be demonstrated that many of the discomforts are based on organic disfunction, on misbehavior, disturbed function, of some organ and that this is emotional in origin rather than due to some pathologic process. It can be shown that

\*Read before the Association in annual session, Birmingham, April 21, 1937.

the term "functional," frequently used to mean a non-organic disease, in fact has a literal meaning when applied to this group of patients. In the following discussion only the 283 patients, classified here as "functional," are considered.

Almost every symptom known to man was present in these 283 individuals. The vast majority of them, however, were suggestive of diseases ordinarily treated by an internist as may be seen from the preponderance of gastro-intestinal complaints in Table 2. These figures in Table 2 represent the total number of major symptoms. Most of the patients had many other minor discomforts. The distribution of complaints is perhaps due to our choice of internal medicine as a specialty and where psychic and other complaints not referable to the field of internal medicine occurred, they were not alone but accompanied one of the more appropriate symptom types. We believe it probable that physicians interested in other fields will find a preponderance of symptoms referable to the regions treated by them. It must be borne in mind that these people had complaints referable to their physical selves; they felt that there was some organic disease and consulted an appropriate physician.

TABLE 2  
OCCURRENCE OF MAJOR COMPLAINTS IN  
"FUNCTIONAL" PATIENTS

|                          |     |     |
|--------------------------|-----|-----|
| Gastro-Intestinal .....  | 204 | 72% |
| Cardio-Respiratory ..... | 57  | 20% |
| Psychic .....            | 116 | 41% |
| Genito-Urinary .....     | 13  | 5%  |
| Miscellaneous .....      | 100 | 35% |

In the attempt to explain symptoms such as these, one can observe functional change in the gastro-intestinal tract by noting the gastric and colonic tone in the x-ray, by not-

ing the emptying time of the stomach and gallbladder, also by x-ray, and by determining the gastric acidity. Functional change in the cardiovascular system can be noted by observing the variability of the pulse rate and of the blood pressure at two or more examinations. There are perhaps other methods of examining functions in other fields. In this series of cases, in the absence of other evidence of disease or causative medication, evidence of malfunction was found in 246 or 87% of the 283 patients, by one or more of these criteria. The frequency of occurrence of each of these things is recorded in Table 3.

This table (No. 3) shows the rather frequent abnormality of all functions examined except the pulse rate. Variability of the pulse rate is a poor criterion as we are comparing the patient with himself rather than with the normal. This may explain the apparently smaller proportion of disordered function, but on the other hand, it may be explained also by the smaller number of the patients who had complaints referable to the heart.

There are other means of observing organic function, but many of them are impractical. Some others were used in this series, but not with sufficient frequency to justify tabulation.

The data are evidence of abnormality in these patients, but does this abnormality explain the symptoms experienced by the patients? When pathology is present, in patients not in this series of course, the resulting disordered activity of an organ, rather than the disease process itself, is frequently responsible for the symptoms and, therefore, it may be assumed that similar disordered organic activity, though of a

TABLE 3  
OCCURRENCE OF EVIDENCE OF DISFUNCTION IN  
283 "FUNCTIONAL" PATIENTS

|                                 | Increased<br>Tone<br>Faster |      | Decreased<br>Tone<br>Slower |      | Combination of<br>Increase and<br>Decrease |      | Normal<br>No Significant<br>Difference |      | Total<br>Number<br>Exam-<br>ined<br>Cases |
|---------------------------------|-----------------------------|------|-----------------------------|------|--|------|--|------|---|
|                                 | Cases                       | %    | Cases                       | %    | Cases                                      | %    | Cases                                  | %    |   |
| Gastric Tone.....               | 52                          | 22.4 | 69                          | 29.7 | 2  | 0.9  | 109                                    | 47.0 | 232                                       |
| Gastric Emptying.....           | 39                          | 16.8 | 81                          | 34.9 |  |      | 112                                    | 48.3 | 232                                       |
| Colonic Tone.....               | 25                          | 17.1 | 86                          | 58.8 | 18   | 12.3 | 17                                     | 11.6 | 146                                       |
| Gallbladder Emptying.....       |                             |      | 28                          | 37.9 |  |      | 46                                     | 62.1 | 74  |
| Gastric Acidity.....            | 78                          | 32.9 | 26                          | 11.0 |  |      | 133                                    | 56.1 | 237                                       |
| Pulse Rate Compared with EKG... | 35                          | 20.9 | 2                           | 1.2  |  |      | 130                                    | 77.9 | 167                                       |



different origin, will produce similar symptoms. For example, pyloric obstruction causes nausea and vomiting because of the failure of the stomach to empty. The vomiting is due to the over filling rather than to the obstructing disease process itself. Similarly, there will be vomiting when the stomach does not empty because of emotional tension. The sensation of rapid beating of the heart in heart disease is not due to the fibrosis of the myocardium in itself, but rather to the fact that the heart is actually beating faster than usual. If the heart beats faster for any reason whatever, fear for example, there will be a corresponding sensation of palpitation. Many other examples could be cited and on the basis of these and a certain correlation between the complaints and findings in the series of patients just discussed, it is concluded that many of the symptoms in these patients are due to the disordered function noted rather than to a disease process.

All of these patients' complaints cannot be explained by demonstration of disturbed organic activity. On the other hand, our methods for detecting abnormal function are extremely limited and the evidence of this data is at least suggestive that a similar process, less readily found, is the basis for many other discomforts of these unfortunate people.

What then is the cause of these disordered organic functions? A vast majority of them result from emotional tension. This is by no means a new concept. We refer you for more detailed reference to "Emotions and Bodily Changes," a 560-page book by Dunbar in which she summarizes the findings reported in 2,251 different articles which show that the emotions can cause almost any known change in bodily function. There are many very common examples that scarcely need be called to your attention. Blushing, sweating, trembling on embarrassment, palpitation, arterial hypertension, hyperglycemia with glycosuria on excitement, loss of appetite with emotional fatigue, vomiting in response to disgust, and frequent urination on nervous waiting occur in many normal individuals. If these familiar phenomena are caused by the emotions, and they are, then it is quite likely that there are many others that are less readily observed, but that cause discomforts. Because of these things, because

most of these 283 patients exhibited considerable emotion and because in a number of cases the function of an organ could be observed to change with changing emotion, it is concluded that the malfunction observed was of emotional origin.

In saying that these things are related to the emotions, one must put a broad definition on the word emotion. It includes a great variety of feelings, not only love and hate, elation and despondency and the pain, hunger, fear and rage of Dr. Cannon's excellent monograph, but also all gradations of these as well as any general feeling elicited by the surroundings and the aspirations, disappointments, and other abstract ideas not dependent on the immediate environment.

No one is free from physical response to the emotions. The degree in which any individual reacts to his emotions is an integral part of his personality. The basic level of this trait is probably hereditary, and is apparently greater in women than in men. Of our 283 patients, about two-thirds were women, twice as many women as men, while the other 717 patients were equally divided between the sexes. It is greater in the Hebrew race and in the Latin races than in the Nordic, and perhaps least marked in Orientals and, with notable exceptions, in Negroes. One can often note a familial similarity in the readiness with which the body responds to the emotions. Thus, there is inherent individual and racial variation.

Environment and experience have a profound influence through the resulting emotions and mental trauma. Physical factors influence the response to the emotions. Fatigue, the menstrual period, and the menopause heighten it. Influenza seems, particularly often, to be followed by an increase in this trait, perhaps due to a mild unrecognized encephalitis. Nutritional inadequacy plays a part. Whether this is an inadequate intake of one or more of the vitamins, of essential amino-acids, or of an entirely different substance not now classified is open to question. The vitamin B complex is very probably a part of this phenomenon. Other physical factors have not been demonstrated. Most important in the patient's immediate problem, physical response to an emotional disturbance sets up a vicious circle that perpetuates itself. The emotional reaction to the discomfort of the orig-

inal response in turn causes further discomfort. The degree in which he reacts to his emotions is thus influenced by the stresses and strains to which man is exposed.

The diagnosis of the nature of these physical symptoms is easy in a way, but in other ways it is extremely difficult. A large majority of these so-called "nervous" patients can be recognized after a few moments of conversation. That is easy. However, this impression is only of the patient's personality and it cannot tell the cause of the symptoms. His emotional reactivity may so add to the symptoms of organic disease that the history will become characteristic of nothing. For this reason, these patients, thought to be of nervous temperament, must be studied with the greatest of care, using as many diagnostic aids as are available. The diagnosis of an emotional origin of the symptoms should not be made a waste-basket for otherwise undiagnosed cases. It should not be diagnosed by exclusion. These patients are identified through physical and laboratory evidence of disturbed function in the presence of causative emotions and in the absence of significant organic disease.

The physician must not be confused by findings which are secondary to the emotional disorder. Malnutrition and nutritional anemia are often the result of emotional loss of appetite. Subnormal basal metabolic rates may represent the result of starvation and inanition rather than thyroid underactivity. A high metabolic rate, a fast pulse or a mildly elevated blood pressure is very often due to emotional tension and, therefore, failure to obtain basal conditions. A low blood pressure, often cited as the cause, is more often the effect of the inanition of the patient. Gastric hyper- or hypoacidity, rapid or slow emptying of the stomach, spasticity of the pylorus and spasticity or atony of the colon may all be of emotional origin. The patient's concern over symptoms due to these often adds to the emotional disturbance causing the discomforts. Thus, in a patient of nervous temperament, it is best to refrain from making a diagnosis of organic disease on any but definite evidence.

The diagnostic terms applied to these patients will vary with the source of the disturbing emotions. Some will fall into the group of psychoneuroses consisting in hys-

teria, psychasthenia, neurasthenia, hypochondria, anxiety states and the like. In these, when the train of psychic events causing the disease results in a marked emotion, the patient's organic functions may respond with misbehavior and the attendant discomforts. Where the psychic trauma necessary to cause one of these conditions cannot be demonstrated, there are other descriptive terms that are useful. Emotional instability, chronic nervous exhaustion, neurocirculatory asthenia and inadequate personality, all apply to patients of slightly different types, but all in this group.

As to treatment, some of these patients should be handled by a psychiatrist. This is especially true when there are abnormal mental processes as in the psychoneuroses. All require psychotherapy, if we may differentiate this from the more formal method of psychiatric attack.

Medical treatment should be directed toward breaking the vicious circle of an essentially normal, minor discomfort setting up an emotion which, in turn, prolongs and magnifies the discomfort. Every part of this circle must be attacked: the patient's misunderstanding of the nature of his symptoms, his concern over his outlook, nutritional failure, and other primary or secondary physical factors must all be considered. The key note of treatment is tactful understanding frankness together with encouragement.

The mechanism of the origin of his symptoms must be made understandable to the patient. The explanation must be rational. It must be pitched to the patient's intelligence level. Reassurance, at least that there is no organic disease, must be freely given and frequently repeated. Detailed examination helps dispel the doubts that all will have.

The second factor in treatment is adequate mental and physical rest, often best begun in the hospital. When he goes home, the patient should lie down in a room alone for an hour or two after the noon meal. He should retire early. His activities should be carefully scrutinized. The cumulative effect of physical and emotional fatigue must be avoided.

Thirdly, he should be given an adequate, balanced diet with attention to the vitamin and animal protein intake. If there are



gastro-intestinal disturbances, whether of spastic or atonic nature, the diet had best be low in roughage with or without the addition of agar for bulk. Where an inadequate diet has been due to poor appetite, the patient must be urged to eat, browbeaten, begged, or made to eat. The vitamin B complex found especially in liver and yeast is a good appetite stimulant. Insulin has been used also. Six small feedings a day are often better tolerated than three large meals. We frankly admit our inability to get around the patient who cannot force himself to swallow unwanted food. A good dietitian and adequate encouragement will usually obviate the emotion producing process of tube feeding.

Lastly, he should be given very few medicines. Those he does take should be for a definite purpose and should have a thoroughly rational physiologic use. Small doses of mild sedative may help him rest. "Tonics," medicines to "build up the system," and like things are probably valueless. Laxatives should be used only with caution.

Finally, a word as to the prognosis: Under this regime, most of these patients will get better, some of them permanently. Many will have relapses when the whole process will have to be repeated. The frequency of recurrence depends, in part, on the patient's inherent responsiveness to his emotions. The prognosis is, we believe, dependent on the prognosis of underlying psychic faults, if they are present, on the patient's ability to accept the proper explanation of his troubles, and in part on his intelligence.

#### BIBLIOGRAPHY

1. Dunbar, H. F.: *Emotions and Bodily Changes*, Columbia University Press, New York, 1935.
2. Cannon, W. B.: *Bodily Changes in Pain, Hunger, Fear and Rage*, 2nd Edition, D. Appleton Company, New York, 1929.

normal. In general, people are more cognizant of, and familiar with, the local manifestations of goiter and because of this sometimes to an incredulous one an explanation must be made that a toxic thyroid or toxic goiter may be present although there is no undue prominence in the neck. The systemic symptoms of goiter may be present with or without enlargement of the thyroid gland and enlargement of the thyroid gland may be present with or without systemic symptoms.—*Mahorner, New Orleans M. & S. J., June '37.*

---

**Diagnosis of Primary Syphilis**—The initial or primary sore of syphilis is the chancre. The diagnosis of the chancre is a laboratory procedure. The physical characteristics of chancre are described in clinical textbooks but they are not reliable for diagnosis. There is no method other than darkfield examination which will certainly differentiate between chancre, chancroid, and herpes. This differentiation is difficult by any other method because the primary lesion of syphilis may be a small abrasion or a painful unindurated area rather than a typical indurated ulcer described for the hunterian chancre. The usual methods of clinical examination, feeling or looking at the ulcer, do not afford a certain diagnosis. If chancres are going to be diagnosed with certainty in all cases, every genital sore, in either the male or female, and every extragenital sore which fails to heal promptly without syphilitic medication should be regarded with suspicion and darkfield examination made.—*Stovall, Wisconsin M. J., May '37.*

---

**Treatment Of Arthritis**—A patient with chronic atrophic arthritis who has lost weight must regain his lost ground. With this loss of weight the physician is often confronted by an anorexia. This is frequently fostered by a deep-seated conviction of the patient that certain foods should be eliminated from his diet, until he is left with a definitely deficient diet. In such cases, give a sincere and forceful explanation of the large number of food elements required by the body, best obtained by a general diet, including as near as possible all types of foods. When such a patient is convinced and will yield the problem of diet to his physician, a great step forward is made. I have found vitamin B, small doses of sodium cacodylate, intramuscular liver injections, and, at times, a bitter tonic helpful in overcoming anorexia.

In every case the patient should be impressed by the necessity of a general diet. A great drawback is that many arthritic patients must have teeth extracted during their treatment. These patients cannot be expected to gain weight, enjoy eating, or properly digest food if they are forced to exist on liquids and very soft foods or firm foods cut in small pieces to be swallowed whole. The important process of thorough mastication cannot be ignored.—*Hamilton, Virginia M. J., May '37.*

---

**Goiter**—From a clinical standpoint the manifestations of goiter are local or general or both. Though the prevailing opinion among the laymen is that a goiter is the appearance in the neck of something entirely new and abnormal or among the better informed that it is an enlargement of the thyroid gland, it is conceivable, and actually does occur, that a goiter may be present with a thyroid gland of normal size or one even smaller than

THE JOURNAL  
OF THE  
Medical Association of the State of Alabama

Editor-in-Chief

FRED W. WILKERSON.....Montgomery

Associate Editors

M. Y. DABNEY.....Birmingham  
W. D. PARTLOW.....Tuscaloosa  
J. N. BAKER.....Montgomery  
DOUGLAS L. CANNON.....Montgomery

Please send in promptly notice of change of address, giving both old and new; always state whether the change is temporary or permanent.

Office of Publication

519 Dexter Avenue.....Montgomery, Ala.

Subscription Price.....\$3.00 Per Year

June 1937

ALCOHOL AND CIRRHOSIS OF THE LIVER

"Cirrhosis of the liver is a fairly common chronic disease, presenting in its later stages a well recognized clinical and pathologic picture. In its early stages, while the histologic aspects may be recognized with reasonable accuracy, the clinical diagnosis is seldom evident and frequently is based more on presumption than on fact.

"Great diversity of opinion exists regarding the etiology of the disease, from both a clinical and an experimental point of view."

Thus do Boles and Clark<sup>1</sup> begin their excellent discussion of this subject. Alcohol has long been considered one of the commonest causes of cirrhosis of the liver and "alcoholic cirrhosis" is an ancient and widely-used term. Other alleged etiologic factors are syphilis, tuberculosis, diabetes, and such acute infections as measles, scarlet fever, typhoid and pneumonia. Copper, arsenic, lead, silver, bacterial toxins, condiments and spicy foods have all been incriminated. And, more recently, a lack of certain vitamins and proteins in the diet has been suspected of causing the disease.

The authors remind us that "in recent years there has been growing an increasing tendency to dispute the status of alcohol in

the development of cirrhosis. It was with this in mind especially that the present investigation was undertaken. We wished to determine the incidence of cirrhosis of the liver. . ." They studied 4,000 autopsies done at the Philadelphia General Hospital between March 1933 and July 1935. As a result of their researches Boles and Clark suggest that terms like portal, biliary, alcoholic and fatty cirrhosis be abandoned and the following classification be adopted instead because it appears to be "more accurate and descriptive" and because an effort has been made to make it a classification based upon etiology:

- 1. Circulatory—The result of prolonged failure of the circulatory system.
- 2. Degenerative—The usual portal or atrophic type, resulting from a degeneration or necrosis of liver cells and proliferation of fibrous tissue.
- 3. Infectious—The result of a continuous low grade infection.
- 4. Obstructive—Due to the obstruction of bile flow.
- 5. Pigment—The deposition of an abnormal pigment. This is a rare form.

It is surprising to read that "the presence or absence of such gross lesions in the digestive tract as ulcer, carcinoma and gall-bladder disease was noted in all the cases of cirrhosis. These lesions occurred so infrequently that it was quite obvious that they bore no relation to the condition.

"From the foregoing analysis it would appear very doubtful that diabetes, syphilis, tuberculosis, the acute infectious diseases or common gross lesions in the digestive tract are of importance in the etiology of cirrhosis." And of alcohol the investigators conclude that "it is generally conceded that the cirrhosis attributed to alcohol is of the portal type, but it must be remembered that the same lesion occurs in children and other non-alcoholic persons as well as in certain animals. Furthermore, the incidence of cirrhosis is not in proportion to the amount of alcohol consumed in certain countries; and in some classes, such as the Hindus, who consume little if any alcohol, cirrhosis is relatively frequent. A majority of drunkards do not have portal cirrhosis, as proved at autopsy, according to our observations and those of others. Finally, then, as regards the role of alcohol,

1. Boles, Russell S., and Clark, Jefferson H.: The Role of Alcohol in Cirrhosis of the Liver, J. A. M. A. 107: 1,200 (Oct. 10) 1936.





*Edward Simmons Sledge*

President of The Association  
1937-1938



which was the primary purpose of this analysis, it is quite evident from our observations that, contrary to prevailing opinion, alcohol cannot seriously be regarded as a specific cause of cirrhosis of the liver."

Great strides have been made during the last ten or twelve years in the study of hepatic physiology and pathology and it is by such accurate and scientific work as that of Boles and Clark that error is exposed and knowledge advanced. It is too early to state with certainty, but it is not impossible that "alcoholic cirrhosis," a diagnosis beloved by medical students, and such dogmatic terms as "hob-nailed liver" and "gin-drinkers' liver," so long inflicted upon young school boys, will either be discarded or, at least, used with much less frequency and recklessness than in the past.

---

#### THE STATE BOARD OF CENSORS' COMMUNICATION TO COUNTY MEDICAL SOCIETIES

The attention of our membership is directed to the communication from the State Board of Censors addressed to County Medical Societies, to be found in this issue under The Association Forum. This communication, together with copies of the Compend and a liberal supply of copies of the Constitution for County Medical Societies, has been sent to every county medical society so that each member can easily and readily familiarise himself with the provisions and legal implications resting upon the organisation of which he is a member. Should additional copies either of the Compend or of the Constitution of County Medical Societies be desired, they may be procured through request made to the Secretary of the State Medical Association, Dr. Douglas L. Cannon, in Montgomery. During quite recent years, the opportunities presented to the organised medical profession of each county to assume active participation and leadership in the uplifting and betterment of community life have tremendously increased and these obligations can best be met through the unified efforts of a soundly organised local profession.

Because of the wide dissemination of educational facilities and the increasing desire on the part of governmental agencies for better health protection for the whole people, physicians are being besieged for

guidance and instruction in matters of health—more and better health alike for the individual and the community. Positive and constructive health is something far larger and more inclusive than the mere negation of disease. Let us, therefore, equip and arm ourselves so as to adequately meet the increasing demands being made upon the medical profession in the important matter of health protection and health guidance.

---

#### ARE YOU A FELLOW?

Fellowship in the American Medical Association is not an empty honor. On the contrary it is a recognition to be striven for; and attainable by every physician in Alabama identified with a county medical society. Membership in one's local society makes one automatically a member of the State and American Medical Associations. Fellowship is an added honor achieved by those making application to the national body and subscribing to its Journal.

What are the considerations of Fellowship? Only Fellows can be appointed as delegates from the State to the American Medical Association. None other can serve as officers of the parent body or participate in the work of its scientific sessions.

Throughout the United States there are 66,296 Fellows, only 511 of whom are in Alabama, recorded as follows by the latest directory of the American Medical Association. Obviously, there should be more.

C. E. Abbott, Tuscaloosa  
M. J. Abrams, Brewton  
C. T. Acker, Montevallo  
P. J. M. Acker, Mobile  
J. M. Akin, Birmingham  
W. W. Alexander, Florence  
S. B. Alison, Minter  
R. H. Alldredge, Fairfield  
T. J. Anderson, Greensboro  
James Andrew, Cordova  
W. S. Armour, Birmingham  
V. L. Ashcraft, Reform  
P. W. Auston, Opelika  
W. C. Bailey, Decatur  
J. N. Baker, Montgomery  
J. D. Bancroft, Birmingham  
Melson Barfield-Carter, Birmingham  
J. M. Barnes, Montgomery  
H. S. Bartlett, Montgomery  
I. C. Bates, Dothan  
J. H. Baumhauer, Mobile  
R. B. Beard, Troy  
J. A. Becton, Birmingham



- W. H. Beddow, Birmingham  
J. G. Bedsole, Jackson  
J. O. Belue, Athens  
C. R. Bennett, Eufaula  
W. T. Berry, Birmingham  
W. F. Betts, Evergreen  
J. W. Bickerstaff, Montgomery  
G. W. Blackshear, Opelika  
W. H. Blake, Jr., Sheffield  
G. E. Blue, Montgomery  
J. H. Blue, Montgomery  
O. P. Board, Birmingham  
J. S. Bobo, Gadsden  
W. M. Bogart, Stevenson  
J. W. Boggess, Jr., Guntersville  
E. D. Bondurant, Mobile  
F. P. Boswell, Montgomery  
F. T. Boudreau, Mobile  
F. H. Boyd, Opelika  
E. G. Bragg, Elba  
J. C. Bragg, Decatur  
R. M. Brannon, Birmingham  
Louise Branscomb, Birmingham  
Terrell Bridges, Boothton  
B. T. Bristow, Bessemer  
W. S. Britt, Eufaula  
J. W. Britton, Anniston  
W. R. Britton, Montgomery  
N. L. Broach, Pine Level  
O. J. Brooks, Huntsville  
T. J. Brothers, Anniston  
E. T. Brown, Cleveland  
L. G. Brownlee, Birmingham  
B. S. Bruce, Opelika  
H. B. Burdeshaw, Dothan  
S. L. Burdeshaw, Headland  
J. D. Burkhead, Opelika  
W. W. Burns, Selma  
B. F. Caffey, Choccolocco  
E. V. Caldwell, Huntsville  
J. E. Cameron, Alexander City  
T. C. Cameron, Faunsdale  
J. S. Camp, Jasper  
Douglas L. Cannon, Montgomery  
E. R. Cannon, Vredenburgh  
J. L. Carmichael, Birmingham  
J. N. Carmichael, Fairfield  
W. M. Carmichael, Fairfield  
W. G. Carnathan, Butler  
C. N. Carraway, Birmingham  
H. R. Carter, Birmingham  
W. R. Carter, Repton  
W. G. Casey, Talladega  
C. H. Chapman, Andalusia  
J. A. Chapman, Alexander City  
J. C. Chapman, Birmingham  
J. P. Chapman, Selma  
O. L. Chason, Mobile  
E. M. Chenault, Decatur  
F. L. Chenault, Decatur  
J. S. Chisolm, Selma  
N. G. Clark, Birmingham  
N. R. Clarke, Mobile  
E. C. Clayton, Leeds  
Price Clayton, Russellville  
F. H. Clements, Birmingham  
C. H. Cleveland, Anniston  
R. E. Cloud, Birmingham  
J. P. Cochran, Birmingham  
R. H. Cochrane, Tuscaloosa  
H. R. Cogburn, Mobile  
L. G. Cole, Ashland  
G. C. Coleman, Ensley  
J. P. Collier, Tuscaloosa  
C. J. Colquitt, Bessemer  
W. W. Compton, Fairfield  
I. L. Connell, Birmingham  
K. W. Constantine, Birmingham  
Earle Conwell, Birmingham  
J. B. Cooper, Birmingham  
D. D. Corrington, Tallassee  
H. R. Coston, Birmingham  
R. M. Coston, Birmingham  
A. M. Cowden, Mobile  
T. D. Cowles, Troy  
W. L. Cowles, Shawmut  
D. J. Coyle, Birmingham  
F. H. Craddock, Sylacauga  
J. H. Crawford, Columbiana  
J. M. Crawford, Arab  
J. S. Crutcher, Sr., Athens  
J. S. Crutcher, Jr., Athens  
R. A. Culpepper, Cullman  
M. L. Cummins, Ashford  
W. M. Cunningham, Jasper  
M. Y. Dabney, Birmingham  
E. W. Daly, Birmingham  
L. O. Davenport, Birmingham  
J. G. Daves, Cullman  
A. W. Davidson, Bessemer  
M. T. Davidson, Birmingham  
M. S. Davie, Dothan  
N. T. Davie, Anniston  
L. C. Davis, Gordo  
H. P. Dawson, Montgomery  
Edward Day, Orrville  
W. T. Deaver, Birmingham  
G. A. Denison, Birmingham  
J. L. Denney, Alexander City  
G. A. Dennis, Montgomery  
F. H. Denson, Bessemer  
N. C. Denton, Oneonta  
R. E. Dixon, Alberta  
R. B. Dodson, Cullman  
D. H. Doherty, Selma  
T. C. Donald, Birmingham  
C. A. Donnelly, Birmingham  
J. T. Doster, Gadsden  
G. F. Douglas, Birmingham  
John Douglass, Birmingham  
H. B. Dowling, Mobile  
J. D. Dowling, Birmingham  
Earle Drennen, Birmingham  
F. G. DuBose, Maplesville  
J. D. Durden, Anniston  
J. H. Edmonson, Birmingham  
J. E. H. Edwards, Yolande  
H. A. Elkourie, Birmingham  
L. A. Elkourie, Birmingham  
L. C. Ellis, Florence  
J. F. Emerson, Spring Garden  
J. T. England, Mobile  
C. C. Fargason, Dadeville  
J. F. Fargason, East Tallassee  
DeWitt Faucett, Gadsden  
Burr Ferguson, Birmingham  
G. H. Fonde, Mobile  
W. D. Fonville, Birmingham  
H. H. Forcheimer, Mobile  
C. H. Ford, Birmingham  
R. A. Foshee, Alexander City, Rt. 6  
J. O. Foster, Luverne  
H. W. Frank, Gadsden  
C. M. Franklin, Union Springs  
B. F. Frazer, LaFayette  
E. B. Frazer, Mobile  
H. F. Gaines, Fairfield  
Toulmin Gaines, Mobile  
J. R. Garber, Birmingham  
R. B. Garlington, Brilliant  
J. E. Garrison, Birmingham  
C. D. Gaston, Birmingham  
E. L. Gibson, Enterprise  
D. G. Gill, Montgomery  
A. C. Gipson, Gadsden  
E. G. Givhan, Sr., Montevallo  
E. G. Givhan, Jr., Birmingham  
T. J. Glasgow, Russellville  
A. L. Glaze, Birmingham  
E. F. Goldsmith, Prichard  
A. G. Goodall, Birmingham  
J. H. Goode, Tuscaloosa  
S. A. Gordon, Marion  
V. J. Gragg, Clanton  
A. H. Graham, Opelika  
G. S. Graham, Birmingham  
Stuart Graves, University  
H. E. Gray, Anniston  
R. J. Grayson, Selma  
Elbert Paul Green, Birmingham  
Elbert Pierce Green, Jacksonville  
W. A. Gresham, Russellville  
O. R. Grimes, Gadsden  
C. A. Grote, Huntsville  
R. J. Guest, Ft. Payne  
W. A. Gunter, Montgomery  
T. D. Haas, Mobile  
D. S. Hagood, Brewton  
M. H. Hagood, Brewton  
W. G. Hairston, Birmingham  
D. C. Haisten, Dothan  
J. Y. Hamil, Decatur  
G. C. Hamilton, Piedmont  
R. A. Hamrick, Birmingham  
W. C. Hannon, Mobile  
W. B. Hardy, Birmingham  
E. H. Hargis, Birmingham  
W. W. Harper, Selma  
W. B. Harrell, Thomaston  
A. B. Harris, Birmingham  
F. W. Harris, Birmingham  
H. A. Harris, Birmingham  
Seale Harris, Birmingham  
W. G. Harrison, Birmingham  
J. K. Haygood, Union Springs  
R. B. Hays, Birmingham  
J. D. Heacock, Birmingham  
H. T. Heflin, Birmingham  
A. D. Henderson, Mobile  
W. T. Henderson, Mobile  
C. E. Herrin, Cullman  
D. M. Hicks, Cottonwood  
H. W. Hill, Carrollton  
J. F. Hill, Montgomery

- L. L. Hill, Montgomery  
 L. L. Hill, Jr., Montgomery  
 R. C. Hill, York  
 R. L. Hill, Haleyville  
 R. S. Hill, Montgomery  
 J. E. Hirsh, Birmingham  
 D. E. Hodges, Prichard  
 Rayford Hodges, Scottsboro  
 E. P. Hogan, Birmingham  
 G. A. Hogan, Birmingham  
 B. F. Holding, Montgomery  
 L. W. Hollis, Mobile  
 M. C. Hollis, Winfield  
 S. W. Horn, Bessemer  
 H. L. Horsley, Boaz  
 J. S. Hough, Montgomery  
 P. J. Howard, Mobile  
 L. W. Hubbard, Tarrant  
 T. B. Hubbard, Montgomery  
 P. D. Hudson, Opelika  
 T. F. Huey, Sr., Anniston  
 T. F. Huey, Jr., Anniston  
 M. P. Hughes, Gadsden  
 V. P. Hughes, Cullman  
 E. M. Hyatt, Albertville  
 J. T. Inge, Mobile  
 R. A. Irons, Thomasville  
 E. A. Isbell, Alabama City  
 A. A. Jackson, Florence  
 B. F. Jackson, Montgomery  
 J. F. Jenkins, Jr., Birmingham  
 C. E. Johnson, Lineville  
 F. M. Johnston, Tuskegee  
 J. Paul Jones, Camden  
 W. C. Jones, Birmingham  
 J. S. Jordan, Birmingham  
 W. F. Jordan, Huntsville  
 Kellie Joseph, Decatur  
 F. A. Kay, Tuscaloosa  
 James Kenan, Selma  
 Hughes Kennedy, Birmingham  
 J. J. Kennedy, University  
 K. F. Kesmodel, Birmingham  
 J. A. Keyton, Dothan  
 C. D. Killian, Ft. Payne  
 G. C. Kilpatrick, Mobile  
 L. A. Kilpatrick, Gadsden  
 L. T. Kincannon, Birmingham  
 C. O. King, Birmingham  
 Kyle Kinkead, Birmingham  
 W. W. Klein, Altoona, Rt. 2  
 C. L. Lamar, Birmingham  
 L. T. Latiolais, Dothan  
 J. B. Laughlin, Huntsville  
 C. B. Lavender, Fairfield  
 Sydney Leach, Tuscaloosa  
 S. L. Ledbetter, Jr., Birmingham  
 B. S. Lester, Birmingham  
 I. P. Levi, Anniston  
 T. K. Lewis, Birmingham  
 W. A. Lewis, Enterprise  
 E. D. Lineberry, Birmingham  
 J. E. Linn, Birmingham  
 J. O. Lisenby, Atmore  
 E. G. Little, Blossburg  
 W. S. Littlejohn, Birmingham  
 W. W. Long, Birmingham  
 J. T. Love, Birmingham  
 R. C. Lovvorn, Newell  
 R. B. Lucas, Winfield  
 Cabot Lull, Birmingham  
 M. H. Lynch, Scottboro  
 T. V. Magruder, Birmingham  
 H. F. Martin, Birmingham  
 J. A. Martin, Montgomery  
 J. C. Martin, Cullman  
 T. E. Martin, Guntersville  
 W. A. Martin, Birmingham  
 E. M. Mason, Birmingham  
 J. M. Mason, Birmingham  
 W. L. May, Powhatan  
 J. A. Maxwell, Tuscaloosa  
 Ralph McBurney, Tuscaloosa  
 R. B. McCann, Seale  
 W. H. McCaslan, Union Springs  
 W. G. McCown, Huntsville  
 G. C. McCrary, Jackson  
 H. C. McCullough, Town Creek  
 T. K. McFatter, Dothan  
 T. P. McGahey, Birmingham  
 P. D. McGehee, Mobile  
 W. W. McGehee, Montgomery  
 E. L. McIntosh, Camden  
 T. D. McKnight, Ariton  
 C. C. McLean, Birmingham  
 C. D. McLeod, Andalusia  
 J. C. McLeod, Bay Minette  
 J. B. McLester, Birmingham  
 J. S. McLester, Birmingham  
 B. W. McNease, Fayette  
 J. A. Meadows, Birmingham  
 W. R. Meeker, Mobile  
 J. H. Meigs, Anniston  
 R. B. Mershon, Fairhope  
 P. S. Mertins, Montgomery  
 J. E. Miller, Huntsville  
 W. L. Miller, Gadsden  
 W. H. Minor, Mobile  
 C. A. Mohr, Mobile  
 A. H. Montgomery, Montgomery  
 J. Ethel Montgomery, Birmingham  
 E. F. Moody, Dothan  
 Maxwell Moody, Tuscaloosa  
 C. H. Moore, Birmingham  
 C. W. C. Moore, Talladega  
 D. S. Moore, Birmingham  
 J. G. Moore, Birmingham  
 L. H. Moore, Orrville  
 W. R. Moore, Florence  
 M. R. Moorman, Huntsville  
 J. O. Morgan, Gadsden  
 J. R. Morgan, Birmingham  
 H. C. Morland, Birmingham  
 S. O. Moseley, Selma  
 Bernard Mount, Montgomery  
 L. R. Murphree, Decatur  
 J. O. Muscat, Mobile  
 R. D. Neal, Grove Hill  
 M. G. Neely, Fairfield  
 C. W. Neville, Flat Creek  
 S. U. Newfield, Birmingham  
 C. M. Nice, Birmingham  
 L. S. Nichols, Geneva  
 W. E. Noel, Boaz  
 M. M. Nolan, Birmingham  
 Lloyd Noland, Fairfield  
 E. T. Norman, Linden  
 J. S. Norton, Sayreton  
 J. C. O'Gwynn, Jr., Mobile  
 J. T. Oliver, Auburn  
 L. C. O'Neal, Andalusia  
 G. G. Oswalt, Mobile  
 W. J. B. Owings, Brent  
 W. S. Owsley, Opelika  
 L. D. Parker, Andalusia  
 Robert Parker, Montgomery  
 J. L. Parsons, Birmingham  
 W. C. Parsons, Birmingham  
 W. D. Partlow, Tuscaloosa  
 C. V. Partridge, Mobile  
 J. D. Peake, Mobile  
 Willena Peck, Montevallo  
 J. R. Penton, Montgomery  
 U. J. W. Peters, Birmingham  
 J. J. Peterson, Mobile  
 F. W. Pickell, Brewton  
 John Prather, Seale  
 A. W. Ralls, Gadsden  
 V. Q. Rawls, Red Level  
 J. U. Reaves, Mobile  
 F. D. Reynolds, Montgomery  
 C. H. Richey, Valley Head  
 H. C. Rike, Birmingham  
 S. S. Roberts, Florence  
 W. S. Roberts, Birmingham  
 J. P. Robertson, Birmingham  
 J. M. Rodriguez, Clayton  
 L. W. Roe, Mobile  
 C. C. Rouse, Mobile  
 H. W. Routledge, Birmingham  
 E. W. Rucker, Birmingham  
 C. M. Rudulph, Birmingham  
 R. O. Russell, Birmingham  
 P. P. Salter, Eufaula  
 W. M. Salter, Anniston  
 J. G. Sanders, Mobile  
 W. B. Sanders, Troy  
 H. J. Savage, Gadsden  
 J. P. Scales, Livingston  
 W. F. Scott, Birmingham  
 J. D. Scrivner, Berry  
 H. B. Searcy, Tuscaloosa  
 G. O. Segrest, Mobile  
 J. L. Seibold, Birmingham  
 I. J. Sellers, Birmingham  
 N. E. Sellers, Anniston  
 J. F. Sewell, Wetumpka  
 J. R. Shamblin, Tuscaloosa  
 J. D. Sherrill, Birmingham  
 J. E. Shirley, Tuscaloosa  
 H. E. Simon, Birmingham  
 Marcus Skinner, Selma  
 C. K. Smith, Greensboro  
 G. R. Smith, Ozark  
 H. R. Smith, Birmingham  
 J. L. Smith, Montgomery  
 Merle Smith, Parrish  
 D. H. Sparks, Birmingham  
 H. P. Speir, Greenville  
 P. V. Speir, Greenville  
 R. D. Spratt, Livingston  
 A. L. Stabler, Birmingham  
 E. V. Stabler, Greenville  
 L. V. Stabler, Greenville



|                              |                               |                               |
|------------------------------|-------------------------------|-------------------------------|
| W. L. Staggers, Birmingham   | H. K. Tippins, Georgiana      | Z. L. Weatherford, Red Bay    |
| J. G. Staples, Gorgas        | C. V. Townsend, Mobile        | C. K. Weil, Montgomery        |
| S. H. Stephens, Mobile       | W. L. Tucker, Cullman         | S. H. Welch, Birmingham       |
| G. E. Stewart, Fayette       | O. R. Troje, Fairfield        | J. M. Weldon, Mobile          |
| R. C. Stewart, Sylacauga     | Abraham Trumper, Montgomery   | F. F. Whitehead, Blountsville |
| W. P. Stewart, Troy          | L. F. Turlington, Birmingham  | M. S. Whiteside, Cullman      |
| Porter Stiles, Birmingham    | F. R. Underwood, Red Bay      | T. F. Wickliffe, Jasper       |
| F. E. Stockton, Birmingham   | S. S. Underwood, Birmingham   | C. C. Wiley, Birmingham       |
| T. H. Street, Alexander City | G. C. Ussery, Roanoke         | F. W. Wilkerson, Montgomery   |
| M. S. Stringer, Florence     | J. A. Ussery, Courtland       | W. W. Wilkerson, Montgomery   |
| S. G. Stubbins, Birmingham   | J. G. Vance, Birmingham       | D. L. Wilkinson, Birmingham   |
| D. F. Talley, Birmingham     | T. E. Van Sant, Piedmont      | J. R. Williams, Selma         |
| Felix Tankersley, Montgomery | S. P. Wainwright, Birmingham  | K. B. Williams, Hartford      |
| R. V. Taylor, Mobile         | R. W. Waldrop, Bessemer       | F. C. Wilson, Birmingham      |
| W. R. Taylor, Town Creek     | A. A. Walker, Birmingham      | J. L. Wilson, Hackleburg      |
| G. H. Teasley, Athens        | A. M. Walker, Tuscaloosa      | H. H. Winters, Tuskegee       |
| S. R. Terhune, Birmingham    | H. C. Walker, Huntsville      | I. M. Wise, Mobile            |
| L. L. Terry, Sylacauga       | Moody Walker, Huntsville      | G. L. Wood, Andalusia         |
| V. J. Thacker, Dothan        | G. F. Walsh, Fairfield        | L. G. Woodson, Birmingham     |
| C. A. Thigpen, Montgomery    | H. S. Ward, Birmingham        | J. H. Woolf, Piedmont         |
| W. G. Thigpen, Montgomery    | J. A. Ward, Birmingham        | D. H. Wright, Berry           |
| B. F. Thomas, Auburn         | G. W. Warrick, Birmingham     | D. O. Wright, Ft. Payne       |
| P. M. Thompson, Bay Minette  | B. B. Warwick, Talladega      | J. F. Yarbrough, Montgomery   |
| W. A. Thompson, Citronelle   | J. Harold Watkins, Montgomery | Ferrin Young, Florala         |
| W. G. Thuss, Birmingham      | Jerre Watson, Anniston        | A. S. Zimmerman, Bridgeport   |

## THE ASSOCIATION FORUM

*(Under this heading will appear, from time to time, as occasion may arise, contributions having a direct bearing on the general policies, functions and interests of the Association. Articles submitted should be of an impersonal nature.)*

### LEGAL RESPONSIBILITIES OF COUNTY MEDICAL SOCIETIES AND THEIR COUNTY BOARDS OF CENSORS

Contributed By The State Board Of Censors

The Medical Association of the State of Alabama is a corporation duly and legally chartered by the State, and to it has been entrusted both the supervision and control of the health of the State and the regulation and enforcement of medical licensure within the State. These are additional and important legal duties imposed upon the organized medical profession, over and above the disciplinary ones inherent in the Association in so far as its own membership is concerned. In 1875, the General Assembly of the State, through the following legislation, constituted this Association the State Board of Health:

"The Medical Association of the State of Alabama, as constituted under the laws now in force, or which hereafter may be in force, is the State Board of Health."

In 1877, again by action of the General Assembly, this Association was made the instrument for regulating and enforcing the medical practice act of the State:

"The Board of Censors of The Medical Association of the State of Alabama, as constituted under the laws now in force, or which may hereafter be in force, is constituted a state board of medical examiners and is charged with the duties and clothed with the powers hereinafter prescribed."

In 1893, the Legislature of the State of Alabama conferred upon this Association the power and authority to issue charters to the several county medical societies of the State, which had organized by adopting constitutions approved by this Association. To each one of the 67 organized county medical societies a charter has been issued by this Association, officially signed by the President and Secretary, which make these societies integral parts of this Association, which, as stated above, has been vested by law with the very important duty and responsibility of the enforcement of the public health laws of the State. The wording of this charter issued to county medical societies is clear and concise, and because of the legal implications placed upon them, should be familiar to every member. It is as follows:

Proof having been made to The Medical Association of the State of Alabama, a corporation

chartered by said State, that the following named physicians of the County of....., to-wit,..... have organized by adopting a constitution, approved by this Association, thus placing themselves in position to co-operate with this Association in the achievement of the objects set forth in its constitution, therefore,

Be it known, That by virtue of the power conferred upon it by the Legislature of the State of Alabama, in an act approved on the 6th day of February, 1893, this Association does hereby charter said body of organized physicians as a county medical society, said society to do and perform all acts in furtherance of the objects of its organization, as set forth in its constitution; and further authorizes and empowers said society, through its proper and legal officials, to enforce the public health and quarantine laws of the State, and the public health ordinances of this Association, in so far as they apply to the said County of.....; and also to enforce in the said county, and in all municipalities therein, such public health ordinances as the respective authorities thereof may legally enact, provided that said society shall not do or perform any act in violation of the constitution or ordinances of this Association.

The said Medical Society of..... County is hereby declared to be affiliated with this Association, and also in fellowship with other county societies in this State chartered by this Association.

Done in annual session in the City of....., on the..... day of....., 189.....

In testimony whereof the signature of the president and that of the secretary of the Medical Association of the State of Alabama, together with the seal of said Association is hereunto affixed.

....., M. D.,  
President.  
....., M. D.,  
Secretary.

It will be observed from the wording of this charter that the starting point for each county medical society is *proper organization* through the adoption of a suitable constitution to govern its own actions and deliberations, not inconsistent with the constitution or ordinances of the State Association. Article XV, Sections 1 and 3 of the constitution of The Medical Association of the State of Alabama read as follows:

"County medical societies when organized under constitutions and by-laws approved by the Association shall be entitled to charters issued by the Association and in such form as it may prescribe."

"County medical societies shall, subject to the approval of the Association, adopt rules and regulations for their own government, shall elect their own officers, and shall perform all other needful acts not inconsistent with the constitution, or ordinances of this Association."

From the above it will be observed that the democratic principle of local autonomy and local self government has been carefully preserved in the constitution of Alabama's medical organisation. However, in order to bring about greater uniformity and to make for increased efficiency in the administration of the public health and other responsibilities legally imposed upon county medical societies and county boards of health, this Association has approved and published in the Compend of the Association a "model" constitution for county medical societies. This model or guide, while not obligatory in so far as county societies are concerned, has been carefully compiled with the dominant thought in mind of safeguarding societies from possible legal blunders and entanglements. No county medical society can, or should, ever lose sight of the fact that it is, in truth, a part of the legal machinery of its county government, whose actions may, at any time, be challenged through the courts. Consequently, the basic principles of this model should be carefully adhered to, with only such modification as local conditions might prompt. No doubt, this model in many county medical societies has served as a guide as to methods of procedure and parliamentary practice, even though the official records or minutes of the society may not clearly set forth official action in this regard on the part of the county medical society.

Part II of the Compend, beginning at page 70, and continuing through page 91, deals most explicitly and carefully with the charter and constitution of county medical societies and points out the reasons and needs for proper legal organisation of every county medical society.

The State Board of Censors, therefore, appreciating the unique and exceptional legal obligations placed upon county medical societies and their respective county boards of health, both in the field of public health and in the enforcement of the medical practice act, feels that each county society should take such steps as may be necessary to assure that its actions are in conformity to law and adequately safeguarded by a constitution adopted in accordance with the charter issued to it by the Association.

Looking to this end the State Board of



Censors urgently makes the following recommendations to county medical societies:

(a) That the president, the secretary and the treasurer, or the secretary-treasurer, of each society, in collaboration with its county board of censors, be constituted a committee on constitution and by-laws to study this entire question as it relates to the particular society in question and to make all recommendations necessary to establish such society on a sound legal basis and in accordance with the suggestions made by this Association and embraced in Part II of the Compend dealing with county societies; and

(b) That the secretary of each county society be requested to report the action taken by said society to the Secretary of the State Board of Censors, J. N. Baker, Montgomery, Alabama.

In order to aid county medical societies in the prosecution of this work, the Board has requested

the State Health Officer and the Secretary of the State Association to provide each society with a copy of the Compend of The Medical Association of the State of Alabama, and also with a sufficient number of printed copies of the constitution for county medical societies so that each member may have one in his possession.

#### STATE BOARD OF CENSORS:

E. V. Caldwell, M. D. Chairman  
M. Y. Dabney, M. D.  
Lloyd Noland, M. D.  
W. D. Partlow, M. D.  
S. A. Gordon, M. D.  
K. A. Mayer, M. D.  
J. D. Perdue, M. D.  
M. S. Davie, M. D.  
Fred W. Wilkerson, M. D.  
T. Brannon Hubbard, M. D.  
J. N. Baker, M. D., Secretary.

## DEPARTMENT OF PUBLIC HEALTH

### BUREAU OF LABORATORIES

James G. McAlpine, Ph. D., Director

#### MALARIA

##### THE IMPORTANCE OF EARLY DIAGNOSIS

In a recent article Meleney<sup>1</sup> discusses the problem of malaria, especially as it pertains to the mortality from this disease. He states that "malaria, like most infectious diseases, presents two distinct problems, the prevention of infection and the prevention of death. The two problems are quite distinct and require different methods of attack." While the former necessitates, as a rule, long-time procedures, in the latter immediate attention is imperative wherever the disease exists.

Malaria is a serious public health problem in Alabama as is evidenced by the mortality and morbidity statistics for this state. Table 1 gives the number of reported deaths, reported cases and laboratory examinations per year for the years 1929-1936, inclusive.

In the year 1929 malaria reached epidemic proportions as the reported 430 deaths and 10,476 cases indicate. During 1930, 1931 and 1932 it declined until a low point of 182 deaths and 2,203 cases were reported in 1932. A slight increase in both reported deaths and cases in 1933 is evident,

and this upward trend continued through 1936. The numbers of laboratory examinations do not present a true picture since they are complicated by surveys which were made in certain restricted areas at various times. For instance, in 1934, approximately 14,000 smears were taken in 14 different counties in a project initiated by the U. S. Public Health Service.

TABLE 1

Malaria Mortality, Morbidity, And Laboratory Data For Alabama 1929-1936, Inclusive

| Year | Number Reported Deaths | Number Reported Cases | No. Of Laboratory Examinations For Malaria, Positive And Negative |
|------|------------------------|-----------------------|---|
| 1929 | 430                    | 10,476                | 12,046  |
| 1930 | 324                    | 4,744                 | 16,747  |
| 1931 | 217                    | 2,481                 | 16,055  |
| 1932 | 182                    | 2,203                 | 11,948  |
| 1933 | 270                    | 4,509                 | 12,012  |
| 1934 | 294                    | 6,473                 | 31,687  |
| 1935 | 327                    | 8,632                 | 36,567  |
| 1936 | 331                    | 8,438                 | 21,415  |

As Meleney<sup>1</sup> points out, "our attitude toward an insidious disease like malaria is quite in contrast to that toward a more dramatic disease like encephalitis or poliomyelitis which occurs in epidemics, although there may be no greater loss of life from the epidemic disease." This is strikingly illustrated by the epidemic of poliomyelitis

1. Meleney, H. E.: The Problem of Malaria Mortality in the United States, *Am. J. Trop. Med.* 17: 15-24 (Jan.) '37.

which swept parts of Alabama last year. For a twelve-months' period ending in December 1936, a total of 391 cases, with 40 deaths, were reported in this state. At the same time 8,433 cases of malaria with 331 deaths were recorded. Poliomyelitis caused untold alarm and repeated notices in the public press, but the general population showed little concern about malaria. Furthermore, this was the first epidemic of poliomyelitis to be experienced by Alabama, and it has been amply demonstrated that this disease seldom appears again in the same area until several years have elapsed. Malaria, on the other hand, is a persistent disease, recurring year after year, unless drastic measures are taken to control or eliminate the mosquito vector. Also, history dramatically illustrates the truth of a statement made by Henry Carter, that "malaria will depopulate a community in which it continuously abides."<sup>2</sup>

Of the three types of malaria—tertian, estivo-autumnal and quartan—only the first two are of importance in Alabama. Quartan occurs so very infrequently that it deserves little attention. In Table 2 are summarized by types the number of positive malaria smears which have been found from 1929 through 1936.

TABLE 2  
Positive Malaria Smears, 1929-1936, Inclusive

| Year | Number Showing<br><i>P. Vivax</i><br>(Tertian) | Number Showing<br><i>P. falciparum</i><br>(Estivo-<br>Autumnal) | Number Showing<br>Mixed Parasites | Number Showing<br><i>P. Malariae</i><br>(Quartan) | Number<br>Unclassified |
|------|--|---|-----------------------------------|---|------------------------|
| 1929 | 1,028  | 447   | 12                                | 12  |                        |
| 1930 | 1,175  | 294   | 9                                 | 1   |                        |
| 1931 | 630  | 156   | 1                                 | 0   |                        |
| 1932 | 553  | 175   | 2                                 | 0   |                        |
| 1933 | 891  | 277   | 6                                 | 0   |                        |
| 1934 | 1,766  | 575   | 37                                | 1   |                        |
| 1935 | 1,800  | 775   | 13                                | 0   | 463                    |
| 1936 | 1,179  | 705   | 9                                 | 1   | 647                    |

It will be seen that only 14 smears showing *P. malariae* have been found in the eight-year period. The rapid increase in the number of *P. falciparum*, beginning with 1934, is especially noteworthy in view of the discussion which will follow. The figures in this table give a better idea than those in Table 1 of the relatively few

smears taken from patients reported as suffering from malaria. For instance, in 1929, 10,476 cases were recorded, but only 1,499 positives were found by the Bureau of Laboratories. Since 1935 the word "unclassified" has been used when reporting thick smears in which only ring forms are found. When a report is received using the word "unclassified," it is most advisable to send in another specimen, but in this case a thin film should be made.

As in syphilis, the attack on malaria must be centered on early diagnosis and adequate treatment. A recent investigation in Tennessee has demonstrated how important these factors are, especially in patients suffering from the estivo-autumnal type. Immediate blood examinations are imperative in all patients coming from malaria regions who are acutely ill, and the smear should be repeated for several days if negative results are obtained. If this is not done, death may often occur.

Meleney<sup>1</sup> summarizes as follows: "It is evident that most fatal attacks of malaria run a rapid course, that the patient, or his family, often does not realize the seriousness of the infection and therefore does not seek medical attention until too late, that microscopic diagnosis is usually not made, and that too often antimalarial drugs are administered in insufficient amount or by a route incapable of coping with a malignant infection."

With estivo-autumnal malaria showing such a decided increase, all possible means of control and treatment should receive most careful attention. The Bureau of Laboratories with its eight branches located in various parts of the state is in a position to render a rapid diagnostic service. Reports will be made by telephone, if requested, thus speeding up the receipt of the results.

**The Physician's Part in Preventive Medicine—**The ideal in a health program would be for every physician to report every communicable disease with which he comes in contact and fortunately most physicians do report their more serious communicable diseases fairly well. One of the greatest problems of a health department is to know where, when and under what circumstances a certain disease is occurring in a community. The control of tuberculosis, syphilis or gonorrhea, diphtheria, or any of the contagious diseases in a community is dependent upon the family physician.—*Parks, Virginia M. J., May '37.*

2. Carter, Henry Rose.: Yellow Fever, Baltimore, The Williams and Wilkins Co. 1931.



## BUREAU OF PREVENTABLE DISEASES

D. G. Gill, M. D., Director

### FREE DRUGS FOR THE TREATMENT OF SYPHILIS

Among the recommendations made by all the groups who have outlined programs of syphilis control, the provision of free drugs has been one of the first. The cost of adequate treatment of syphilis for any case is of necessity considerable since treatment should be continued over a period of at least a year and a half and in many instances longer. The very cost of the drugs has frequently prevented the individual concerned from following the treatment recommended to a successful conclusion and instead of a happy outcome we have the relapsing case with its attendant troubles.

The State Committee of Public Health has approved the plans of the department to make available to all physicians free drugs for the treatment of syphilis regardless of the financial status of the patient. It is, of course, impossible to carry all drugs and all makes of drugs on the market, but there will be available neosarsphenamine, sulpharsphenamine, soluble and insoluble bismuth, a mercury preparation and distilled water. Each county health department will carry a supply of these drugs and any physician can obtain his needed supplies from that source.

In the case of the unorganised counties supplies may be obtained from the State Health Department in Montgomery.

Reports as to the cases treated will be required, although the initials may be given instead of the name if privacy is desired. It is not the intent of the department to require burdensome reports, but unless some record is kept showing how these drugs have been used it will be difficult to justify the large outlay that this program calls for.

Syphilis has been decreed as "the next great plague to go," but this can only be accomplished by thorough treatment of all infected individuals. The provision of free drugs should enable physicians to treat cases with limited financial resources and still receive recompense for their labors.

Help stamp out syphilis in Alabama!

### VENEREAL DISEASE CLINICS

There are 24 counties in Alabama having free or part pay venereal disease clinics.

Only three of these treat both syphilis and gonorrhea, the remaining 21 treating syphilis only. The clinics are operated as follows:

1. By the county medical society—the Huntsville plan, or

2. By county or city or both; or

3. By county health officers.

There are ten clinics operated by societies, three by county or city or both, and eleven by county health officers. In the second instance, the county or city pays a clinician. When conducted by the county health officer, the clinic is a part of his program.

Clinics operated by the medical society are becoming quite popular. While at the beginning of 1937 only two such clinics were in operation, eight more have been added during the first five months of the year. The plan was worked out by the physicians in Huntsville, Alabama, and so is quite appropriately called the Huntsville plan.

Under this arrangement a roster is compiled of the physicians in the county who are willing to act as clinicians. The service is a rotary one and each physician operates the clinic for a period of one month. It is the responsibility of the attending clinician to have a physician present at the clinic in case he cannot attend himself. The local health department supplies the necessary equipment, office space and nursing and clerical help. The State Health Department supplies all necessary drugs. Each patient is charged a small fee, usually 50c. All money collected at any one session is turned over to the clinician in charge for that day. Reference to the clinic is made by physicians only.

That the clinics will be used fully by those entitled to their services is the hope of all who have been instrumental in their establishment. When it is conservatively estimated that about 6,000,000 men, women and children throughout the nation are infected with syphilis, with Alabama having its share, the importance of the disease is apparent; and this is all the more true when it is considered that not one in ten is under treatment by a licensed physician.

The following is the list of clinics operated in Alabama:

VENEREAL DISEASE CLINICS  
Syphilis treated only, except in Birmingham, Mobile and Montgomery

| COUNTY     | PLACE  | DAY  | HOUR            | OPERATED BY                            |
|------------|--|--|-----------------|--|
| Cherokee   | Centre, Health Office                                | Saturday   | 8 A. M.-5 P. M. | Health Officer                         |
| Cleburne   | Heflin, Health Office                                | Saturday   | 9-12 A. M.      | Health Officer                         |
| Colbert    | Tuscumbia, Health Office                             | Wednesday  | 11-12 A. M.     | Medical Society                        |
| Conecuh    | Evergreen, Health Office                             | Saturday   | 9-12 A. M.      | Health Officer                         |
| Coosa      | Rockford, Health Office                              | Saturday   | All day         | Health Officer                         |
|            | Goodwater, Alabama Power Co.                         | Thursday   | 8-12 A. M.      | Health Officer                         |
|            | Hillwood, Dr. Maddox's Office                        | Friday   | 8-12 A. M.      | Health Officer                         |
| Covington  | Andalusia, Health Office                             | Wednesday  | 2-3 P. M.       | Medical Society                        |
| Cullman    | Cullman, Health Office                               | Friday   | 2-3 P. M.       | Medical Society                        |
| Dallas     | Selma, Health Office                                 | Tuesday  | 2:30-4 P. M.    | Health Officer                         |
|            | Selma, Health Office                                 | Thursday   | 2:30-4 P. M.    | Health Officer                         |
| DeKalb     | Ft. Payne, Health Office                             | Thursday   | 2:30 P. M.      | Dr. J. E. Buzbee<br>and Health Officer |
| Henry      | Abbeville, Health Office                             | Tuesday  | 1:30-3 P. M.    | Health Officer                         |
|            | Headland, City Hall                                  | Wednesday  | 2 P. M.         | Health Officer                         |
| Jackson    | Scottsboro, Health Office                            | Saturday   | 9-12 A. M.      | Health Officer                         |
| Jefferson  | Birmingham, Hillman Hospital                         | Tuesday and Thursday (Syphilis)                    | 8 A. M.         | Dr. J. P. Robertson                    |
|            | Birmingham, Hillman Hospital                         | Monday, Wednesday, Friday and Saturday (Gonorrhea) | 8 A. M.         | Dr. J. P. Robertson                    |
| Lee        | Auburn, Toomer Bldg.                                 | Monday, Wednesday and Friday                       | 11-12 A. M.     | Medical Society                        |
| Limestone  | Athens, Health Office                                | Wednesday  | 2-3 P. M.       | Medical Society                        |
|            | Mooreville, Peoples Gin                              | Tuesday  | 5:30-7 P. M.    | Medical Society                        |
| Lowndes    | Hayneville, Health Office                            | Saturday   | 8-12 A. M.      | Health Officer                         |
| Madison    | Huntsville, Elks Bldg.                               | Monday (Females)                                   | 2-5 P. M.       | Medical Society                        |
|            | Huntsville, Elks Bldg.                               | Wednesday (Males)                                  | 2-5 P. M.       | Medical Society                        |
| Marshall   | Albertville, Court House                             | Tuesday  | 2 P. M.         | Medical Society                        |
| Mobile     | Mobile, City Hospital                                | Daily, except Saturday                             | 12-1:30 P. M.   | Dr. L. W. Hollis                       |
| Montgomery | Montgomery, corner Washington Ave., and Lawrence St. | Monday, Wednesday and Saturday                     | 2-3 P. M.       | Dr. J. R. Haigler                      |
| Morgan     | Decatur, Health Office                               | Tuesday and Friday                                 | 11-12 A. M.     | Medical Society                        |
| Perry      | Marion   | Friday and Saturday                                | All day         | Medical Society                        |
| Russell    | Phenix City, Reese Drug Store                        | Tuesday  | 3-6 P. M.       | Medical Society                        |
| Talladega  | Talladega, Health Office                             | Thursday   | 2-5 P. M.       | Health Officer                         |
|            | Sylacauga, City Clerk's Office                       | Saturday   | 9-12 A. M.      | Health Officer                         |
| Walker     | Jasper, Health Office                                | Saturday   | 9-12 A. M.      | Health Officer                         |

## BUREAU OF VITAL STATISTICS

Leonard V. Phelps, S. B. in P. H., Director

### PELLAGRA\*

#### I. HISTORICAL

According to Rosenau,<sup>1</sup> pellagra was first described by Gaspar Casal who observed it in the neighborhood of Oveido, Spain, more than 200 years ago (1735). He called it "rose sickness." Sixteen years later, Francis Frapoli, of Italy, gave the disease its present name. Since that time, it has been reported in many parts of the world.

The first recorded observation of pellagra in the United States was made by Gray, from Utica, New York, in 1864. In the same year another physician reported a case in Massachusetts.<sup>2</sup> Cases were reported from New York in 1882 and 1902. A Georgia physician reported a case in 1902. In 1906 an Alabama physician was the first to report pellagra in endemic form in the United States. In submitting this report, he pointed out that there had been cases present, but unrecognized in the Mount Vernon, Alabama, Insane Asylum, annually since 1901.

In 1912 a physician in South Carolina, on

the basis of a study of clinical records of the Carolina State Hospital for the Insane and some personal interviews, concluded that the disease had been present in South Carolina since at least 1828.

It has been prevalent, especially in the southern part of the United States. From the earliest records of mortality in Alabama, pellagra has been an important cause of death.

#### II. GEOGRAPHIC DISTRIBUTION IN ALABAMA

It is interesting to note the geographic distribution of counties showing a high average death rate from this disease. The concentration of such counties in the southern part of the State is striking, as the accompanying map shows.

The average resident death rate in the following group of counties (1932-1935) was 17.9 per 100,000 population: Barbour, Bullock, Butler, Clarke, Crenshaw, Dale, Dallas, Greene, Henry, Lee, Lowndes, Macon, Marengo, Monroe, Montgomery, Pike, Russell, Sumter, Wilcox. For the remainder of the State it was 9.7.

The incidence above and below the pellagra belt decreases so that in the northern part of the State, with the exception of Jackson County, mortality rates are comparatively low, although every county in the State has reported deaths from this cause in past years.

\*First of a series of articles on pellagra.

1. Rosenau, M. J.: Preventive Medicine and Hygiene, D. Appleton-Century Co., New York, 1927.

2. U. S. Public Health Service, Health News, release of January 4, 1932.



**LEGEND:**

- 15.0 AND OVER PER 100,000 POPULATION
- 10.0-14.9 PER 100,000 POPULATION
- UNDER 10.0 PER 100,000 POPULATION

DEATHS ALLOCATED TO PLACE OF RESIDENCE AND DEATH RATES FROM PELLAGRA, ACCORDING TO COUNTY:  
ALABAMA, 1932-1935

| COUNTY          | Number |      |      |      | Death Rates Per 100,000 Population |      |      |      | Average<br>1932-1935 |
|-----------------|--------|------|------|------|------------------------------------|------|------|------|----------------------|
|                 | 1932   | 1933 | 1934 | 1935 | 1932                               | 1933 | 1934 | 1935 |                      |
| TOTAL           | 346    | 367  | 309  | 254  | 12.7                               | 13.4 | 11.2 | 9.0  | 11.5                 |
| Autauga.....    | 5      | 2    | 2    | —    | 25.2                               | 10.0 | 10.0 | —    | 11.2                 |
| Baldwin.....    | 3      | 5    | 2    | 2    | 10.0                               | 16.3 | 6.5  | 6.2  | 9.7                  |
| Barbour.....    | 2      | 6    | 6    | 5    | 6.1                                | 18.4 | 18.4 | 15.3 | 14.6                 |
| Bibb.....       | —      | 5    | 2    | —    | —                                  | 24.1 | 9.6  | —    | 8.4                  |
| Blount.....     | 1      | 1    | 1    | 1    | 3.5                                | 3.5  | 3.5  | 3.4  | 3.4                  |
| Bullock.....    | 3      | 1    | 1    | 1    | 15.0                               | 5.0  | 5.0  | 5.0  | 7.5                  |
| Butler.....     | 1      | 3    | 2    | 1    | 3.3                                | 9.9  | 6.6  | 3.3  | 5.7                  |
| Calhoun.....    | 4      | 6    | 7    | 4    | 7.0                                | 10.3 | 12.0 | 6.7  | 9.0                  |
| Chambers.....   | 5      | 5    | 3    | 3    | 12.7                               | 12.7 | 7.6  | 7.6  | 10.2                 |
| Cherokee.....   | 2      | 2    | 1    | 1    | 9.9                                | 9.9  | 4.9  | 4.9  | 7.4                  |
| Chilton.....    | 5      | 3    | 3    | 3    | 20.0                               | 11.9 | 11.9 | 11.8 | 13.9                 |
| Choctaw.....    | 5      | 5    | 1    | —    | 24.4                               | 24.4 | 4.9  | —    | 13.4                 |
| Clarke.....     | 9      | 4    | 2    | 4    | 34.6                               | 15.4 | 7.7  | 15.4 | 18.2                 |
| Clay.....       | 1      | 2    | 1    | 4    | 5.6                                | 11.2 | 5.6  | 22.5 | 11.2                 |
| Cleburne.....   | 2      | 1    | —    | —    | 15.5                               | 7.8  | —    | —    | 5.8                  |
| Coffee.....     | 2      | 6    | 4    | 3    | 6.0                                | 18.0 | 12.0 | 8.9  | 11.2                 |
| Colbert.....    | 3      | 3    | 1    | 1    | 10.0                               | 10.0 | 3.3  | 3.3  | 6.7                  |
| Conecuh.....    | 3      | 4    | 1    | 5    | 11.7                               | 15.6 | 3.9  | 19.3 | 12.6                 |
| Coosa.....      | 2      | 2    | —    | —    | 16.0                               | 16.0 | —    | —    | 8.0                  |
| Covington.....  | 2      | 6    | 5    | 3    | 4.7                                | 14.2 | 11.8 | 7.0  | 9.4                  |
| Crenshaw.....   | 6      | 2    | 7    | 1    | 25.2                               | 8.4  | 29.3 | 4.2  | 16.7                 |
| Cullman.....    | 3      | 1    | 3    | 1    | 7.0                                | 2.3  | 6.9  | 2.2  | 4.5                  |
| Dale.....       | 2      | 5    | 14   | 4    | 8.6                                | 21.4 | 60.0 | 17.1 | 26.8                 |
| Dallas.....     | 14     | 5    | 9    | 5    | 25.4                               | 9.0  | 16.3 | 9.0  | 14.9                 |
| DeKalb.....     | 3      | 5    | —    | 2    | 7.2                                | 11.9 | —    | 4.6  | 5.9                  |
| Elmore.....     | 2      | 5    | 3    | 2    | 5.6                                | 13.8 | 8.5  | 5.5  | 8.2                  |
| Escambia.....   | 3      | 1    | 4    | 2    | 10.3                               | 3.4  | 13.8 | 6.7  | 8.3                  |
| Etowah.....     | 5      | 5    | 8    | 1    | 7.5                                | 7.3  | 11.7 | 1.4  | 6.8                  |
| Fayette.....    | 1      | 1    | 1    | 2    | 5.4                                | 5.4  | 5.4  | 10.8 | 6.8                  |
| Franklin.....   | 2      | 2    | —    | 3    | 7.7                                | 7.6  | —    | 11.1 | 6.6                  |
| Geneva.....     | 5      | 3    | 7    | 3    | 16.5                               | 9.9  | 23.1 | 9.8  | 14.8                 |
| Greene.....     | 2      | 6    | 1    | 3    | 9.9                                | 29.6 | 4.9  | 14.6 | 14.8                 |
| Hale.....       | 3      | 4    | 2    | 1    | 11.2                               | 14.9 | 7.4  | 3.7  | 9.3                  |
| Henry.....      | 3      | 5    | 2    | 3    | 13.0                               | 21.5 | 8.6  | 12.8 | 14.0                 |
| Houston.....    | 4      | 5    | 11   | 7    | 8.4                                | 10.3 | 22.6 | 13.9 | 13.8                 |
| Jackson.....    | 8      | 9    | 2    | 4    | 21.6                               | 24.2 | 5.4  | 10.7 | 15.4                 |
| Jefferson.....  | 42     | 51   | 39   | 34   | 9.0                                | 10.6 | 8.3  | 6.9  | 8.7                  |
| Lamar.....      | —      | 1    | 1    | —    | —                                  | 5.6  | 5.6  | —    | 2.8                  |
| Lauderdale..... | 1      | 4    | 5    | 1    | 2.4                                | 9.6  | 12.0 | 2.4  | 6.6                  |
| Lawrence.....   | 1      | 2    | —    | 6    | 3.6                                | 7.2  | —    | 21.2 | 8.1                  |
| Lee.....        | 14     | 11   | 7    | 13   | 45.5                               | 29.6 | 22.7 | 41.7 | 36.4                 |
| Limestone.....  | 3      | 4    | 2    | 1    | 7.9                                | 10.4 | 5.2  | 2.5  | 6.5                  |
| Lowndes.....    | 7      | 5    | 2    | 2    | 30.6                               | 21.8 | 8.7  | 8.7  | 17.5                 |
| Macon.....      | 6      | 4    | 5    | 2    | 21.5                               | 14.2 | 18.2 | 7.1  | 15.0                 |
| Madison.....    | 2      | 3    | 5    | 6    | 3.0                                | 4.4  | 7.3  | 8.4  | 5.8                  |
| Marengo.....    | 7      | 10   | 9    | 6    | 19.2                               | 27.4 | 24.6 | 16.4 | 21.9                 |
| Marion.....     | 1      | —    | 1    | 2    | 3.7                                | —    | 3.7  | 7.1  | 3.6                  |
| Marshall.....   | 6      | 3    | 2    | 2    | 14.5                               | 7.1  | 4.8  | 4.6  | 7.7                  |
| Mobile.....     | 21     | 37   | 27   | 17   | 17.2                               | 29.8 | 22.0 | 13.5 | 20.4                 |
| Monroe.....     | 3      | 5    | 4    | 5    | 9.9                                | 16.4 | 13.1 | 16.3 | 13.9                 |
| Montgomery..... | 16     | 20   | 21   | 20   | 15.6                               | 19.2 | 20.4 | 18.8 | 18.3                 |
| Morgan.....     | 6      | 2    | 2    | 4    | 12.5                               | 4.1  | 4.2  | 8.1  | 7.2                  |
| Perry.....      | 2      | —    | 4    | 3    | 7.5                                | —    | 15.0 | 11.2 | 8.4                  |
| Pickens.....    | 4      | 3    | 1    | 2    | 16.1                               | 12.0 | 4.0  | 8.0  | 10.0                 |
| Pike.....       | 7      | 4    | 5    | 3    | 21.6                               | 12.3 | 15.4 | 9.2  | 14.6                 |
| Randolph.....   | 8      | 1    | 3    | 1    | 29.8                               | 3.7  | 11.2 | 3.7  | 12.1                 |
| Russell.....    | 13     | 2    | 10   | 3    | 38.0                               | 5.8  | 29.7 | 8.8  | 20.7                 |
| Shelby.....     | 4      | 4    | 2    | 4    | 14.4                               | 14.4 | 7.2  | 14.4 | 12.6                 |
| St. Clair.....  | 6      | 3    | —    | 3    | 24.2                               | 12.1 | —    | 12.0 | 12.0                 |
| Sumter.....     | 5      | 8    | 4    | 3    | 18.4                               | 29.2 | 14.6 | 10.8 | 18.2                 |
| Talladega.....  | 8      | 5    | 3    | 5    | 17.3                               | 10.7 | 6.4  | 10.5 | 11.2                 |
| Tallapoosa..... | 4      | 2    | 3    | 1    | 12.7                               | 6.3  | 9.5  | 3.1  | 7.9                  |
| Tuscaloosa..... | 11     | 11   | 7    | 6    | 16.5                               | 16.3 | 11.0 | 9.1  | 12.9                 |
| Walker.....     | 5      | 11   | 6    | 8    | 8.4                                | 18.4 | 9.6  | 12.5 | 12.0                 |
| Washington..... | —      | 3    | 4    | —    | —                                  | 17.6 | 23.5 | —    | 10.2                 |
| Wilcox.....     | 6      | 11   | 6    | 5    | 24.1                               | 44.2 | 24.1 | 20.1 | 28.1                 |
| Winston.....    | 1      | 1    | —    | 1    | 6.3                                | 6.2  | —    | 6.2  | 4.7                  |



## BUREAU OF HYGIENE AND NURSING

B. F. Austin, M. D., Director

### THE TREATMENT OF INFECTIOUS DIARRHEA IN INFANCY

While it is desirable to recognize diarrheas in the several classes into which they are frequently divided, namely, mechanical diarrhea, fermentative diarrhea, infectious diarrhea and acute intestinal intoxication, it is not now regarded as necessary for their therapeutic management since there are certain fundamental things in the treatment of diarrheas common to all. Indeed, the classes mentioned may be regarded merely as phases of the same condition.

The management of the milder phases, such as the fermentative or mechanical diarrhea, is sometimes quite simple if the patients are seen early enough. A mild cathartic, such as equal parts of milk of magnesia and aromatic syrup of rhubarb, castor oil or your favorite purgative, provided it is not too drastic, and the withdrawal of food for about twelve hours, followed by the judicious administration of a diet, are frequently all that is necessary. It may be well to recall, however, that any of them, no matter what they may be in the start, may suddenly manifest a high temperature with a convulsion. This initiates the severe type to which the name acute intestinal intoxication is given. The severe diarrhea and vomiting depletes the child of gastro-intestinal secretions resulting in dehydration with either acidosis or alkalosis, and a clinical picture which undoubtedly does not need repetition here.

There are three things which must be met in the treatment of this condition. First, the baby is urgently in need of fluids to overcome the dehydration. In addition, it has become demineralized from the loss of base from the cells of the body, the intracellular fluids and blood plasma as well as some of the fixed bases such as sodium, potassium, calcium or magnesium in an amount sufficient to cause a negative base balance. Second, it is necessary to take some step to eliminate some of the toxemia which initiated the symptoms. Third, the acidosis or alkalosis must be overcome.

If the child is in convulsions and has a marked degree of hyperpyrexia, which is

usually the case, efforts to relieve both would naturally be the first steps. Hydrotherapy, the warm pack, the mustard bath, or warm bath may be used. Some prefer the baths because the lower bowels may be irrigated while the child is in the tub and two measures may be used at the same time. When packs or baths are used an ice bag or cold cloths should be applied to the head. A hypodermic of morphine should be given to these babies in doses of a sixteenth to a twentieth of a grain depending upon age. Morphine relieves the pain which they are undoubtedly suffering and certainly can do no harm.

Purgatives are distinctly contraindicated as the elimination from the intestinal tract is most complete and in fact too thorough for the general good of the baby.

After having relieved the convulsions and hyperpyrexia the administration of fluids and minerals should be started without delay. Since persistent vomiting frequently obviates any possibility of giving very much fluid by mouth, the various parenteral routes must be used: namely, by hypodermoclysis, venoclysis, and through the peritoneal cavity. Formerly, it had been necessary to differentiate sharply between acidosis and alkalosis in order to institute proper therapy. This called for frequent analyses of the blood, which were often difficult to make because of the difficulty in obtaining blood from these young children, lack of laboratory facilities, expense, as well as the fact that the determinations were time consuming when time was at a premium.

Fortunately, this is no longer necessary for after long and careful study of the problem, Alexis Hartmann has developed a combined solution which consists of sodium lactate in combination with hypotonic Ringer's solution which is effective against dehydration with a moderate degree of alkalosis and acidosis. This solution is obtainable in ten and twenty cc. ampoules which may be diluted twenty-five times with sterile distilled water, or it may be had in five hundred and one hundred cc. flasks ready for use.

Dextrose may be combined with the lactate Ringer's solution to supply calories to the baby during the starvation period. The water in the solution containing dextrose is

released the moment the dextrose is oxidized to carbon dioxide and water, which, being eliminated by the lungs, relieves any burden on the kidneys whose functions are more or less impaired during an acute intestinal intoxication.

Blood transfusions have proved beneficial to restore the blood volume and increase the infant's resistance but under no circumstances should transfusions of blood be used until after fluid restoration has been accomplished.

Of course, no attempt should be made to give food by mouth in severe cases of diarrhea with toxic symptoms. We rely entirely on the fluids administered otherwise and on the dextrose administered in the Hartmann solution.

As soon as the general symptoms of the child improve, it usually becomes capable of retaining food by mouth. We may begin with a weak tea sweetened with saccharine or with protein milk, which is still regarded as being the most desirable food on which to begin to feed these infants. Since it is now available in powdered form, the objection raised to the trouble in preparing it no longer exists. The initial amount of protein milk should be from one to one and one-half ounces (thirty to forty-five cc.) six to ten times a day. This is gradually increased up to a total daily amount not exceeding thirty-two ounces. No carbohydrate is added until there is improvement in the bowel movements, and then only one which is most easily assimilated such as dextromaltose.

Another desirable formula at this stage for initiating feeding is lactic acid milk made with evaporated milk. First the acid sugar solution must be made up as follows:

|                           |                          |
|---------------------------|--------------------------|
| Lactic acid, U. S. P..... | .1 teaspoonful           |
| Dextro-maltose.....       | .12 level tablespoonsful |
| Boiled water.....         | 1 pint                   |

The formula is then made by using equal parts of this solution and evaporated milk.

Drugs do not play an important part in the treatment of diarrheas, although there are many who still believe that opium in the form of paregoric may be useful in allowing the infant an opportunity to rest.

Bismuth and chalk mixtures have virtually been abandoned.

J. J. R.

## BUREAU OF SANITATION

G. H. Hazlehurst, C. E., M. C. E., Director

### MOSQUITO CONTROL

Several species of mosquitoes are found in Alabama. Some are transmitters of disease and others are of concern only because they bite. Mosquitoes have different habits and characteristics, as well as flight ranges. To wage a successful campaign against these pests, a full knowledge of each type encountered is essential.

During the course of development all mosquitoes pass through four stages, namely, egg, larva, pupa and winged adult. Water is necessary for their development in three of these stages; that is, from the egg to the larva or wiggle-tail, from the larva to the pupa or tumbler, and from the pupa to the winged adult. The primary measure of control is, therefore, the elimination of stored water, but this is not always possible or even desirable. The prevention of the development of the three aquatic stages is the next best method of attack. The control of all types is often too expensive to undertake, but under certain conditions it may be desirable to control one or more particular species for the prevention of disease transmission or for the reduction of the pest mosquito population by attacking specific species.

Three members of the anopheles family are found in Alabama, and one of these, namely, the *Anopheles quadrimaculatus*, is practically the sole vector of malaria. The flight range of this malaria carrier is upward of one and one-half miles.

Control measures for this group, where the breeding areas can not be eliminated, usually consist of (a) spraying oil or dusting Paris green on the water surface each week, and (b) biologic control consisting of the introduction of predacious minnows and varying the water level. Maintenance of a clean water edge and surface is essential for effective control with either larvicides or minnows.

The culicine family, consisting of three principal species, namely, *Culex quinquefasciatus*, *Culex territans*, and *Culex salinarius*, do not transmit diseases, but their biting often becomes a serious nuisance. These



three types are nearly indistinguishable in appearance and very similar in habits. Control measures for the culicine group differ from those used for anopheles control in two ways. Paris green is not effective as the larvae of the culicine group are subsurface feeders and, therefore, will not eat the floating particles. Artificial containers such as rain water barrels, cans, tubs, and gutters are suitable for the breeding of the culicine group, whereas they are not suitable for anopheles breeding. These containers can not be overlooked if a mosquito campaign is to be successful. They must be destroyed, screened, or kept clean and stocked with minnows, or emptied and washed out or oiled weekly.

The *Culex quinquefasciatus* mosquito prefers sewage-contaminated water in which to breed. The standard oil mixture is not effective for water heavily polluted, but can be made satisfactory by adding a good commercial larvicide to the amount of from 5 to 10 per cent by volume. Commercial larvicides are added on the basis of water volume; whereas, oil is applied on the basis of surface area. The chief objection to the use of good grades of commercial larvicides is their cost; however, they have their special uses as given above and also where oil is objectionable on account of the fire hazard.

The *Aedes aegypti*, formerly known as the *Stegomyia fasciata*, is the yellow and dengue fever mosquito. In addition its bites are most painful. The wrists and ankles of the individual are the parts most attacked. It breeds in artificial containers always near human habitation. The control of this species, therefore, consists of the destruction of the containers, screening the containers or maintaining a clean water surface and stocking them with minnows, or emptying and washing them each week, or oiling them each week. The cooperation of the householders and routine inspection of premises are essential. Each end of cans should be removed, discarded bottles and glassware should be broken, and rain barrels and cisterns should be screened. Lily ponds and fish pools should be maintained as other artificial containers mentioned above. The removal of the aquatic vegetation for two or more hours every fourth day, thereby permitting the minnows to devour the mosquito larvae, might be resorted to.

The other species of mosquitoes found in our state are not generally controlled. The *Aedes triseriatus*, which breeds principally in water contained in tree holes, can be prevented from producing by filling or capping the upper opening of the tree holes. The *Psorophora ferox*, a wood mosquito which breeds in woodland pools and seldom leaves the shade, is not often controlled. Wind currents will occasionally carry this type into towns where they will persist in the shaded places for two or three weeks.

The *Aedes sollicitans*, the salt marsh mosquito, breeds in salt or brackish pools along the coast. The control of this type is rarely undertaken, but can consist of oiling, stocking with minnows or draining areas, making use of the tide variation to raise the alkalinity of the water to a concentration that will inhibit breeding. Large areas are often drained at low tide and high tide water is kept from the area by tide gates.

The elimination of vegetation is important in the control of the anopheles and the culex species. The lining of ditches with a permanent material, such as concrete, masonry, creosoted timber and terra cotta pipe inverts, is effective in reducing maintenance and larvicide costs. This type improvement is often financially justified by the savings resulting therefrom.

Municipal mosquito control is relatively expensive, but can be secured through organized effort and proper measures for from fifty cents to one dollar per capita per season. Where interested municipalities desire it, a study of the mosquito problem will be made by a representative of the State Health Department in company with a member of the county health unit, after which a report setting out the findings and including recommendations will be furnished the officials. Where sufficient funds are not available for control of all types of mosquitoes encountered, consideration can be given to controlling certain types—those which transmit disease or those which are found to be most numerous. In this type program, however, the residents should be advised of the modified campaign, in order that they will not expect control of all mosquito breeding and thus become dissatisfied with the program when the uncontrolled types begin to bite.

F. B. W.

## CURRENT STATISTICS

\*PREVALENCE OF COMMUNICABLE  
DISEASES IN ALABAMA  
1937

|                       | March | April | Estimated<br>Expectancy<br>April |
|-----------------------|-------|-------|----------------------------------|
| Typhoid               | 8     | 6     | 18                               |
| Typhus                | 12    | 20    | 8                                |
| Malaria               | 82    | 102   | 125                              |
| Smallpox              | 0     | 1     | 24                               |
| Measles               | 69    | 64    | 691                              |
| Scarlet fever         | 58    | 41    | 43                               |
| Whooping cough        | 153   | 205   | 192                              |
| Diphtheria            | 48    | 34    | 53                               |
| Influenza             | 7731  | 1838  | 357                              |
| Mumps                 | 210   | 284   | 159                              |
| Poliomyelitis         | 4     | 2     | 2                                |
| Encephalitis          | 2     | 3     | 2                                |
| Chickenpox            | 180   | 108   | 196                              |
| Tetanus               | 0     | 5     | 5                                |
| Tuberculosis          | 198   | 264   | 361                              |
| Pellagra              | 15    | 10    | 52                               |
| Meningitis            | 55    | 60    | 10                               |
| Pneumonia             | 986   | 623   | 471                              |
| Syphilis              | 1381  | 1437  | 169                              |
| Chancroid             | 10    | 9     | 9                                |
| Gonorrhea             | 419   | 397   | 171                              |
| Ophthalmia neonatorum | 2     | 1     | 1                                |
| Trachoma              | 1     | 0     | 1                                |
| Tularemia             | 5     | 1     | 2                                |
| Undulant fever        | 1     | 1     | 1                                |
| Dengue                | 0     | 1     | 0                                |
| Amebic dysentery      | 0     | 3     | 0                                |
| Rabies—Human cases    | 0     | 0     | 0                                |
| Positive animal heads | 99    | 98    |                                  |

\*As reported by physicians and including deaths not reported as cases.

The Estimated Expectancy represents the median incidence of the past nine years. With the venereal diseases, clinic cases were not included prior to 1936.

## Book Abstracts and Reviews

**The Handmaiden of The Sciences.** By Eric Temple Bell, Professor of Mathematics, California Institute of Technology. The Williams & Wilkins Company, Baltimore. 216 pages. \$2.00.

The book under review was written as a companion to a former volume. In 1931 Professor Bell published *The Queen of the Sciences* which discussed, as he says, "the nature of mathematics, especially as it has developed in the past century, rather than its uses." In this more recent book he outlines the services which mathematics has rendered to other sciences.

He maintains that prediction is the most important of the services which mathematics put at the disposal of other sciences. Astronomy and physics in many instances have advanced because mathematics pointed the way, or the development of new methods in mathematics gave astronomers and physicists new tools by which they could solve, or more exactly partially explain, the mysteries of Nature. In elaborating his thesis Professor Bell rapidly surveys the fields of conic sections, fourth and higher dimensions, and discusses the concepts of continuity and discreteness of matter and motion. He emphasizes that "the essence of mathematics is deductive reasoning from explicitly stated assumptions called postulates."

In his preface the author states that no more than high school mathematics is essential to the understanding of this book, and the formulas which cover a number of pages may be skipped without breaking the continuity of thought. Nevertheless, to one who uses higher mathematics very

seldom, if ever, after his college days, these symbols may prove a stumbling block. Despite this, the author's style and his pungent humor do much to relieve the exceedingly abstract reasoning in certain portions. To anyone who is interested in the philosophy of science this book will prove most valuable.  
J. G. McA.

**Chemical Procedures for Clinical Laboratories.** By Marjorie R. Mattice, A. B., Sc. M., Assistant Professor of Clinical Pathology, New York Postgraduate Medical School of Columbia University; Assistant Director of the Biochemical Laboratory, New York Postgraduate Hospital; Consultant Chemist, Reconstruction Hospital, New York City. Lea & Febiger, Philadelphia. \$6.50.

As Miss Mattice states in her preface, this book is "an outgrowth of more than a decade of personal teaching" and "presents the organization of biochemical instruction at the New York Postgraduate Medical School of Columbia University." It is divided into four sections dealing with blood, urine, gastro-intestinal secretions and miscellaneous body fluids. In the appendix, which should prove most useful, normal data for blood, urine and other body fluids are presented, colorimetric technique and mathematical calculations are discussed and important solutions and reagents are given. There is an adequate index.

All methods presented have proven their value in actual experience. The inclusion of clinical data is gratifying. The book is well written and sufficient detail is given to make the procedures clear. Since it is intended as a laboratory guide, references are embodied in the text and only those of most importance are included.  
J. G. McA.

**Preoperative and Postoperative Treatment.** By Robert L. Mason, A. B., M. D., F. A. C. S., Assistant in Surgery at the Massachusetts General Hospital. 495 pages with 123 illustrations. Philadelphia and London. W. B. Saunders Company, 1937. Cloth, \$6.00 net.

With enthusiasm and without reservation, the reviewer commends this volume to all who are entrusted with the care of operative patients. This book contains statements which should be no more familiar to surgeons than to internists, operating room assistants and graduate nurses. It should be thoroughly understood by medical students before they begin instruction in operative technique.

Doctor Mason decries operations without preliminary study of the patient's entire physical status. The strain through which he is about to go demands a certain amount of stamina. It is necessary to understand both the strength and weakness of the patient. By proper preoperative care, many of his handicaps may be overcome and the success of the operation assured. Diabetes and heart disease need not be serious handicaps if recognized and treated but if unrecognized they may change a perfect technical operation into a cause of death.

Doctor Mason describes the various disturbances that handicap a patient about to be operated on. He evaluates the risk of each and describes the special means of preoperative care. He makes the reader realize that surgery is not merely a matter of operating, that the patient is a living being and that the fundamental physiologic principles must be taken into consideration before and after an operation as well as during it.

Doctor Mason decries preoperative purgation and



dehydration and stresses the need of cooperation between surgeon and internist. He discusses in detail such complications as shock, hemorrhage, acidosis, alkalosis, ileus, dilatation of the stomach, pulmonary complications, thrombosis and urinary complications. The special care in the treatment of burns, Graves' disease, empyema, biliary tract disturbances, and gastro-intestinal and urinary surgery is well presented.

Doctor Mason stresses the fact that "efficiency and pleasant surroundings in the hospital help the patient to face his ordeal far better than any amount of misguided sympathy." C. K. W.

**The Legal Aspects of Milk Control.** By James A. Tobey, Dr. P. H., Chicago International Association of Milk Dealers, 1936. Price \$3.00.

Dr. Tobey, author also of "Public Health Law," "The Most Nearly Perfect Food," and numerous articles pertaining to court decisions on legal questions arising in the control of milk quality, has organized in an orderly manner the opinions rendered in 336 cases tried or reviewed in state courts, federal courts, and the U. S. Supreme Court.

The subject is introduced by a chapter on "Reasons for the Public Control of Milk," in which the obvious significance of safe milk is set forth, and the development of law on the subject is outlined. Subsequent chapters deal with: The Sanitary Regulation of Milk by the State; Municipal Control of Milk; Licenses and Permits; Standards for Milk and Dairy Products; Inspection, Sanitation, and Seizure of Milk; Tuberculin Testing and the Health of Dairy Cattle; Pasteurization; Containers for Milk; and Liability in Connection with Dairy Products.

This volume should prove a valuable reference for those responsible for the drafting of milk legislation, for those whose function it is to prosecute legal actions necessary in the enforcement of milk legislation, and, finally, for those who might be tempted to oppose reasonable enforcement measures, but who are legally responsible for the wholesomeness of the product distributed. C. A. A.

**A Study of Masturbation and the Psychosexual Life.** By John F. W. Meagher, M. D., F. A. C. P. Re-edited and revised by Smith Ely Jelliffe, M. D., P. H. D. 149 pages. 3rd edition. Baltimore, Maryland, William Wood and Company, 1936.

This book is designed primarily for lay public reading, especially for those individuals who expect to give or be asked to give sex instruction. The subject is treated as simply as possible in order that ministers, teachers and parents may glean much useful knowledge.

In order for an individual to give adequate and proper sex instruction, it is necessary to know the do's and don'ts and what response in the individual's sex life may develop from each. The psychosexual development is divided into four periods: 1. the autoerotic, 2. the narcissistic, 3. the homosexual, and 4. the heterosexual. External factors more often than internal factors may be responsible for the arrest in psychosexual development and result in perversion.

Masturbation is adequately discussed as to its causes, symptoms and treatment. Comparisons are made between masturbation and coitus.

This book is well worth the time spent in reading for physicians, ministers, teachers, etc. It certainly will help to develop a better understanding of children and adolescents in many of their sex problems. W. H. Y. S.

**Surgical Pathology of the Thyroid Gland.** By Arthur E. Hertzler, M. D., Surgeon to the Agnes Hertzler Memorial Hospital, Kansas; Professor of Surgery, University of Kansas. J. B. Lippincott Company, publishers. Philadelphia, Montreal and London. 298 pages with 238 illustrations. 1937. Cloth. \$5.00.

On the basis of his personal studies of large numbers of patients with various types of thyroid disease and of large numbers of goitres removed at operation, Doctor Hertzler has formed some very original opinions as to the relation of the pathology in the thyroid gland to the clinical picture of thyroid disease. He presents his subject like a moving picture rather than a photograph. The picture found at operation is a result not only of the stage of the disease for which the patient is operated on, but rather the result of the many various conditions in the past which have left their mark on the thyroid gland.

The normal thyroid gland, microscopically, varies with the age of the patient. Doctor Hertzler presents a clear picture of the thyroid from the prenatal period to old age. The pathology of the thyroid of adolescent goitre, diffuse non-toxic goitre, nodular non-toxic goitre, toxic adenoma, and Grave's disease is well described. The danger of cardio-toxic effects as an end result of thyroid disease is stressed.

The original ideas are presented in a very original manner of expression that adds charm to what might be a dull work. Pathologist, surgeons and internists will find this book of definite value. Like all new ideas, those of the author cannot yet be accurately evaluated but the facts he presents are worth knowing, even if you do not agree with his suggested conclusions. C. K. W.

**Lectures on Diseases of Children.** Seventh Edition. By Robert Hutchison, M. D., LL. D., F. R. C. P., Consulting Physician to the London Hospital and to the Hospital for Sick Children, Great Ormond Street, Baltimore. William Wood and Company, 1936. Cloth, 452 pages. Price \$6.75 net.

In the Seventh Edition of his book entitled "Lectures on Diseases of Children," Dr. Hutchison has presented most concisely and clearly the common ailments of infants and children. Unlike the average textbook on pediatrics the author has approached the subject from a purely clinical standpoint laying particular stress on diagnosis and treatment and has included many exceptionally fine photographs illustrating most of the diseases discussed.

The book, states the author, is not intended in any sense to be an exhaustive treatise on the diseases of childhood, nor to compete with the many admirable textbooks of that subject already in existence.

Unfortunately, the chapter on "Infant Feeding" cannot be recommended since many of the products advocated are not generally available in this country; such as Allenbury No. 3, Ridge's Food, Banger's, etc.

With this particular exception, the book offers an enjoyable review to pediatricians and physicians interested in diseases of children. J. J. R.

**Senile Cataract. Methods of Operating.** By W. A. Fisher, M. D., F. A. C. S., Professor of Ophthalmology, Chicago Eye, Ear, Nose and Throat College; formerly Professor of Clinical Ophthalmology, University of Illinois; formerly Surgeon, Illinois Charitable Eye and Ear Infirmary; formerly President, Chicago Ophthalmological Society; Member, Illinois State Medical Society; Chicago Medical Society; Fellow, American Medical Association; Fellow, American College of Surgeons; Fellow of the Academy of Ophthalmology and Oto-Laryngology. With Chapters by Professor E. Fuchs, Vienna, Austria; Professor I. Barraquer, Barcelona, Spain; Doctor H. T. Holland, Skijarpur, Sind, India; Doctor John Westley Wright, Columbus, Ohio and Doctor A. Van Lint, Brussels, Belgium. Third Edition. 150 pages and 181 illustrations. The H. G. Adair Printing Company, publishers, Chicago, Illinois. 1937. Cloth.

This little book in ten well written chapters compiled by Doctor Fisher presents the methods of cataract extraction as performed in this and foreign countries. After-treatment and postoperative complications are dealt with briefly. The final chapter deals with the fitting of corrective lenses after extraction.

By presenting the views of several authorities on cataract extraction, the general principles of the operations are emphasized. The pitfalls one must avoid in operating are forcefully stressed. The compactness of the material should appeal to every ophthalmologist.

F. M. T.

**Materia Medica, Toxicology and Pharmacognosy.** By Williams Mansfield, A. M., Phar. D., Dean and Professor of Materia Medica and Toxicology, Union University, Albany College of Pharmacy, Albany, New York. The C. V. Mosby Company, St. Louis. Cloth, 107 pages with 202 illustrations. 1937. Price \$6.75.

About two-thirds of the space in this book is devoted to a description of crude drugs of plant origin. The second portion deals systematically with the mode of action of various types of poisons and the specific treatment of various kinds of poisoning. The last section gives the dosage of U. S. P. and N. F. drugs. The section on toxicology is of practical value to the physician. The remainder of the book is of value chiefly to students of pharmacy. Few physicians even in the most isolated parts of the country are forced to find and identify drug plants and make their preparations from the crude material. A close association between pharmacy and medicine has made it practical for all physicians to rely upon the pharmacist or the more reliable drug houses to supply him with preparations far superior to any he might make and at reasonable cost. To our collaborators—the manufacturing pharmacist—we recommend this book, reserving for our especial study the chapter on toxicology.

C. K. W.

**Why We Do It. An Elementary Discussion of Human Conduct and Related Physiology.** By Edward C. Mason, M. D., Ph. D., F. A. C. P., Professor of Physiology, University of Oklahoma School of Medicine, Oklahoma City. C. V. Mosby Company, publishers, St. Louis. 1937. Cloth, 177 pages. Price \$1.50.

This little volume, just a pocket edition, attempts to condense into minimum space, the essential facts and theories concerning the value and application of practical psychology. The author has written it primarily for the educated public, rather than for the medical profession. While the author has succeeded in covering a large field of psychology he has lost much by condensing it. Definitions frequently are no more clear than the term being defined. Frequently when he illustrates to clarify a situation, he uses terms too technical to be un-

derstood by the layman. On the whole the author has succeeded in covering his subject, but his book is too sketchy and brief for medical use, and too technical to be of great value to the general public. The medical reader will find it a pleasant and refreshing review of what he should already know.

C. K. W.

**Surgical Treatment.** By James Peter Warbasse, M. D., F. A. C. S., Special Lecturer in the Long Island Medical College; formerly Attending Surgeon to the Methodist Episcopal and the Wyckoff Heights Hospitals, Brooklyn, N. Y., and Calvin Mason Smyth, Jr., B. S., M. D., F. A. C. S., Assistant Professor of Surgery in the University of Pennsylvania, Graduate School of Medicine; Surgeon-in-Chief to the Methodist Episcopal Hospital, Philadelphia, Pa.; Visiting Surgeon to the Abington Memorial Hospital, Abington, Pa. Second edition. Thoroughly revised and reset. 3 volumes with separate index. 2,617 pages with 2,486 illustrations on 2,237 figures, some in colors. Philadelphia and London. W. B. Saunders Company, 1937. Cloth, \$35.00 per set.

In 1919, the first edition of Warbasse's Surgical Treatment was published. It was an extremely well written and well illustrated set of books. It was not simply a description of surgical technique but rather, as indicated in the subtitle, "A Practical Treatise on the Therapy of Surgical Diseases." In its presentation it was simple and practical and despite its three-volume length extremely brief. Instead of presenting all of the methods of operating on given conditions, the author presented what he considered the ideal procedure, giving a few alternative procedures in case the ideal was impractical. Not only did he discuss operative treatment but he also discussed in detail medical treatment where it might be used as a substitute for surgery.

The second edition includes revisions on the sections dealing with blood transfusion, thyroid disease, hernia, pulmonary tuberculosis, anesthesia and the use of physical agents in surgical treatment. If you possess a first edition, these changes in revision will not justify the purchase of a new one, but if you need a good text-book on operative technique and surgical treatment, you will find nothing superior to this work of Warbasse's.

C. K. W.

**Trauma and Disease.** Edited by Leopold Brahdly, B. S., M. D., Physician in Charge of Industrial Diseases and Accidents in the Office of the Corporation Counsel of the City of New York, New York City; and Samuel Kahn, B. S., M. D., Medical Examiner in the Bureau of Workmen's Compensation of the Department of Labor, State of New York, New York City. 613 pages. Lea and Febiger, Philadelphia. 1936. Cloth. \$7.50 net.

The book recently published by Drs. Brahdly and Kahn on the relationship between trauma and disease covers a subject on which attention is being focused at this time.

The growth of industrial and preventive medicine, compensation and accident laws and the advancement of social and legal implications of trauma to disease make it imperative that the physician be familiar with the facts based on pathologic, clinical and laboratory investigations. The contributors to this volume are authorities in their individual fields of medicine. There is some divergence of opinion. Such knowledge as we have is incomplete and different opinions among medical leaders is to be expected.

This book should be of interest to all practitioners of medicine, but especially to those in the fields of preventive and industrial medicine.

A. J. P.



## INDEX

### THE JOURNAL OF THE MEDICAL ASSOCIATION OF THE STATE OF ALABAMA

Volume 6

July 1936-June 1937

#### EXPLANATORY NOTES

##### Arrangement of Index

The index is arranged under the following headings:

- I. Authors.
- II. Subjects.
- III. Editorials.
- IV. Transactions of the Association, 1936.
- V. The Association Forum.
- VI. Committee Contributions.
- VII. Department of Public Health.
- VIII. Book Abstracts and Reviews.

#### I. AUTHORS

##### A

- Alexander, W. W.—The pre- and postparalytic management of acute anterior poliomyelitis 326.  
Alldredge, R. H.—Ainhum (dactylolysis spontanea), a case report with roentgenologic and pathologic findings 137.

##### B

- Baker, J. N.—William Crawford Gorgas, his contribution to civilisation 192.  
Bennett, C. R.—Angina pectoris 377.  
Bogges, J. W., Jr.—A consideration of functional disorders in relation to diseases of the gallbladder 350.  
Burns, Edgar—Surgery of the prostate 189.

##### C

- Campbell, Willis C.—The practical application of physiological principles in treatment of fractures 125.  
Carmichael, J. L., and Carmichael, W. M.—Carcinoma of the large bowel, a review of the literature with case reports 221.  
Chenault, F. L.—Skeletal traction 300.  
Clark, W. B.—Errors of refraction as they relate to the general physician 225.  
Clayton, Price—Hypertension without edema 265.  
Cloud, R. E.—Fractional doses for infants and children, proposing a formula for determining doses of potent drugs during infancy 353.  
Clyde, W. A., and Neely, M. G.—Meningococcal meningitis, ten cases treated with meningococcic antitoxin without a fatality 227.  
Collier, J. P.—Appendicitis, series of cases 231.  
Craig, W. M.—Diagnosis and treatment of pain about the face and head, comprising the major types of neuralgia 296.

##### D

- Dandy, W. E.—The diagnosis and treatment of brain tumors 162.  
Dearing, W. Palmer—A new attack on the tuberculosis problem 201.

##### G

- Gipson, A. C.—Diseases of the newborn 355.  
Greene, G. B.—Anemia in pregnancy 324.  
Guice, C. L.—Fractures of the lower end of the tibia and fibula 305.

##### H

- Haggard, W. D.—Recent developments in the study and surgery of goiter 157.  
Harris, Seale—Factors in automobile accidents: fatigue, disease and alcoholic beverages 257.  
Harrison, W. G., Jr.—Modern conception of congestive heart failure 373.

##### L

- LeJeune, F. E.—The human larynx 95.  
Lull, Cabot—Some points in the differential diagnosis of common lung diseases 267.

##### M

- Marshall, Wallace, and Marshall, V. F.—Traumatism and parkinsonismus 358.  
McLester, J. B.—The functional patient 381.  
Musser, J. H.—Abdominal pain due to extra-abdominal disorders 33.

##### P

- Parran, Thomas—The next achievement in public health 93.  
Partlow, W. D.—A debt the world owes medical science, Jerome Cochran Lecture 6.

##### R

- Rankin, F. W.—Modern management of organic lesions of colon and rectum 98.  
Reaves, J. U.—Granuloma inguinale, differentiated from lymphogranuloma inguinale 317.  
Repa, J. J.—Practical suggestions in pediatrics 270.  
Rivers, A. B.—Certain factors important in the etiology and treatment of peptic ulcer 166.  
Robertson, J. P.—The effect of pregnancy on the upper urinary tract 204.

##### S

- Salter, P. P.—A clinical study of intestinal obstruction 134.  
Signorelli, John—Eczema from the pediatrician's standpoint 197.

##### T

- Terhune, S. R.—Some recent advances in orthopedic surgery 293.  
Thames, Eugene—Formaldehyde in the fluids of the body, preliminary report 13.  
Thigpen, C. A.—The importance of the trained physician to modern society, President's Message 1.  
Trumper, A., and McAlpine, J. G.—Undulant fever associated with abdominal pains 42.

##### V

- Vinson, P. P.—The bronchoscopic management of pulmonary abscess 349.

## W

- Waldrop, R. W.—Inguinal hernia 104.  
Walsh, Groesbeck, and Stickley, C. S.—Notes on high eosinophile counts in arsphenamine poisoning 299.  
Weil, C. K.—Hay-fever in Alabama 302.  
analysis of one hundred cases 329.

## II. SUBJECTS

## A

- Abdominal pain due to extra-abdominal disorders (Musser) 33.  
A debt the world owes medical science—Jerome Cochran Lecture (Partlow) 6.  
Ainhum, case report (Alldredge) 137.  
Anemia in pregnancy (Greene) 324.  
Angina pectoris (Bennett) 377.  
Appendicitis, series of cases (Collier) 231.  
Arsphenamine poisoning, notes on high eosinophile counts (Walsh and Stickley) 299.  
Automobile accidents, factors: fatigue, disease and alcoholic beverages (Harris) 257.

## B

- Brain tumors, diagnosis and treatment (Dandy) 162.

## C

- Carcinoma of the large bowel, a review of the literature with case reports (Carmichael and Carmichael) 221.  
Common lung diseases, some points in differential diagnosis (Lull) 267.

## D

- Diseases of the gallbladder, consideration of functional disorders in relation (Boggess) 350.  
newborn (Gipson) 355.

## E

- Eczema from the pediatrician's standpoint (Signorelli) 197.

## F

- Formaldehyde in the fluids of the body, preliminary report (Thames) 13.  
Fractional doses for infants and children, proposing a formula for determining doses of potent drugs during infancy (Cloud) 353.  
Fractures of lower end of tibia and fibula (Guice) 305.

practical application of physiological principles in treatment (Campbell) 125.

## G

- Goiter, recent developments in study and surgery (Haggard) 157.  
Gorgas, William Crawford, his contribution to civilisation (Baker) 192.  
Granuloma inguinale, differentiated from lymphogranuloma inguinale (Reaves) 317.

## H

- Hay-fever in Alabama (Weil) 302.  
analysis of one hundred cases (Weil) 329.  
Heart failure, congestive, modern conception of (Harrison) 373.  
Hypertension without edema (Clayton) 265.

## I

- Inguinal hernia (Waldrop) 104.  
Intestinal obstruction, clinical study (Salter) 134.

## L

- Larynx, human (LeJeune) 95.

## M

- Meningitis, meningococcal, ten cases treated with meningococcic antitoxin without a fatality (Clyde and Neely) 227.

## N

- Next achievement in public health (Parran) 93.

## O

- Organic lesions of colon and rectum, modern management (Rankin) 98.  
Orthopedic surgery, some recent advances (Terhune) 293.

## P

- Pain about the face and head, diagnosis and treatment, comprising the major types of neuralgia (Craig) 296.  
Patient, the functional (McLester) 381.  
Pediatrics, practical suggestions (Repa) 270.  
Peptic ulcer, certain factors important in etiology and treatment (Rivers) 166.  
Poliomyelitis, acute anterior, pre- and postparalytic management (Alexander) 326.  
Pregnancy, effect on upper urinary tract (Robertson) 204.  
Prostate, surgery (Burns) 189.  
Pulmonary abscess, bronchoscopic management (Vinson) 349.

## R

- Refraction, errors, as they relate to general physician (Clark) 225.

## S

- Skeletal traction (Chenault) 300.

## T

- Trained physician, importance to modern society—President's Message (Thigpen) 1.  
Traumatism and parkinsonismus (Marshall and Marshall) 358.  
Tuberculosis, a new attack on the problem (Dearing) 201.

## U

- Undulant fever associated with abdominal pains (Trumper and McAlpine) 42.

## III. EDITORIALS

## A

- Administration of iodine in toxic goiters 335.  
Alcohol and cirrhosis of the liver 386.  
American Foundation studies in government 362.  
A new stimulus to child health work 15.  
Are you a Fellow 388.

## C

- Cinchophen again 236.  
Communication, Board of Censors to societies 388.  
Continuous treatment of early syphilis 210.

## D

- Death claims Dr. Kirkpatrick 236.

## E

- Early reservations essential 272.  
Ectopic pregnancy 109.

## F

- Fever therapy 14.

## I

- Is leukemia a food deficiency disease? 108.



## M

- Maternal mortality 45.  
179.  
May Day, child health day, 1937—325.  
Medicolegal applications of blood grouping 306.  
Mental breakdowns 273.

## P

- Poliomyelitis in Alabama 44.

## R

- Rabies treatment fund exhausted 14.  
Racial aspects of coronary sclerosis 178.

## S

- Serum therapy in pneumonia 44.  
Societies participate in occupational tax 307.

## T

- The Birmingham meeting 362.  
The new rabies control act 307.  
"Time makes ancient good uncouth" 272.  
Treatment of certain cardiac crises 142.  
delirium tremens 363.

## IV. TRANSACTIONS OF THE ASSOCIATION

- Committee reports 21.  
Officers of Association 82.  
Registration at 69th Consecutive Annual Session 73.  
Report of Secretary 18.  
Report of State Board of Censors 50.  
as Board of Medical Examiners 59.  
as State Committee of Public Health 60.  
Report of Treasurer 19.  
Reports of Vice-Presidents 17.  
Resolution by Dr. Martin 26.  
Revision of rolls 70  
Roll of correspondents 81.  
Roll of counsellors, alphabetically 78.  
by districts 79.  
Schedule of annual sessions and presidents since  
reorganization in 1868—81.  
Schedule of Jerome Cochran lecturers 82.  
Secretaries of M. A. S. A. 81.  
Summary of annual attendance 78.  
Treasurers of M. A. S. A. 81.

## V. THE ASSOCIATION FORUM

- Group hospitalization (Carraway) 48.  
Legal responsibilities of societies and boards of  
censors 391.  
Maternal mortality study 46.  
The physician's interest in the Social Security  
Act 237.

## VI. COMMITTEE CONTRIBUTIONS

- Prevention of cancer, Women's Field Army 336.

## VII. DEPARTMENT OF PUBLIC HEALTH

### A

- A bill for better bills 308.  
Abortions 88.  
Accidental deaths in Alabama, 1935—90.  
A challenge to State Health Officers 179.  
*Aedes* *egypti* 30.

## C

### Carriers:

- I. Introduction and definitions 85.  
II. Role in spread of certain diseases 112.  
III. 143.  
IV. 180.  
V. 213.  
VI. 285.  
VII. Value of routine carrier surveys in food  
handlers 309.  
Clarification of the inspection program 314.  
Communicable disease reporting 144.  
during 1936—286.  
Conditioning of public water supplies in reference  
to dissolved chemicals—Iron 146.  
Coosa County, immunization status of white school  
children 288.  
County health nurse and practicing physician 216.  
Crabmeat picking and packing developments 89.  
Current statistics 31

121

150

186

219

253

290

316

344

370

402

## D

- Deaths from lightning in the U. S. 1927-1933, 117.  
Diarrhea, infectious, treatment 399.  
Diphtheria immunization, age at which should be  
given 29.

## E

- Endemic typhus fever, its cause and control 116.

## H

- Health of the school child 144.

## I

- Infant mortality 219.

## M

- Malaria, importance of early diagnosis 393.  
Malarial therapy in paresis 115.  
Maternity, making safe 368.  
Mineral salts in natural waters, physiological ef-  
fects 217.  
Mosquito control 400.  
Municipal sanitation, organized 342.  
with special reference to  
maintenance 369.

## N

- New venereal disease report card 311.

## P

- Pediatrics and child health 30.  
Pellagra: Part I 396.  
Physician and maternal care 250.  
Poliomyelitis, after care 114.  
Alabama's epidemic 83.  
progress report on epidemic 115.  
some observations on epidemic 181.  
in Alabama, 1936, experience with  
picric acid-alum spray in preven-  
tion 278.  
in Alabama during 1936—275.

Prenatal care, standards 183.  
Preventive pediatrics 315.  
Provisional summary of births and deaths, Alabama, 1936—343.  
Puerperal infection 288.  
Pulmonary tuberculosis, ambulatory pneumothorax 87.

**R**

Registering births and deaths, importance 147.  
Registration and the physician 252.  
Report of American Foundation studies in government 364.

**S**

Sanitation's place in the state health program 110.  
Soil erosion and malaria 183.  
Specimen containers for serum submitted for dark-field examination 365.  
Steel tanks for public water supply storage, preservation 251.  
Summary of the annual report of the Bureau of Vital Statistics, 1935—184.  
Syphilis:  
Can syphilis be controlled? 88.  
Early syphilis—The chancre 215.  
The secondaries 248-312.  
Continuous treatment 368.  
Free drugs for treatment 395.  
Important maxims worth following in the treatment of prenatal cases 29.  
Treatment of congenital 182.  
Venereal disease clinics 395.

**T**

Technic for obtaining a darkfield specimen 342.  
The next great plague to go 211.  
Toxicological specimens, proper 28.  
Trained sanitation officers, importance 289.  
Trends in mortality, Alabama, 1925-1935, 366.  
Typhoid vaccine 339.  
Typhus fever during 1936—215.

**U**

Urinary infection in children, diagnosis and treatment 341.

**V**

Venereal disease conference in Washington 286.  
control in a rural county 313.  
program, need for integration of practising physician into 245.  
reporting 368.

**VIII. BOOK ABSTRACTS AND REVIEWS****A**

Allergy of the nose and paranasal sinuses: Hansel 32.  
A manual of pharmacology: Sollmann 153.  
An introduction to medical science: Boyd 345.  
Arthritis and rheumatic disease: Lautman 153.  
A study of masturbation and the psychosexual life: Meagher 403.  
A text-book of obstetrics: Schumann 153.  
A text-book of pathology: MacCallum 152.  
A text-book of physiology, for medical students and physicians: Howell 153.

**B**

Bright's disease and arterial hypertension: Stone 291.

**C**

Carcinoma of the female genital organs: Malinowsky and Quarter 346.  
Clinical procedures for clinical laboratories: Mat-tice 402.  
Clinical heart disease: Levine 32.

**D**

Diseases of the respiratory tract: clinical lectures of 8th annual graduate fortnight of New York Academy of Medicine 32.  
Disinfection and sterilization: McCulloch 154.

**E**

Endocrinology in modern practice: Wolf 121.  
Exophthalmic goitre and its medical treatment: Bram 121.

**H**

Heart disease and tuberculosis: Knopf 123.

**L**

Laboratory manual for chemical and bacterial analysis of water and sewage, second edition: Theroux, Eldridge and Mallmann 291.  
Lectures on diseases of children: Hutchison 403.  
Legal aspects of milk control: Tobey 403.

**M**

Materia medica, toxicology and pharmacognosy: Mansfield 404.  
Medical clinics of North America: 291.  
Medical morals and manners: Royster 292.  
Minor surgery: Christopher 122.

**N**

New and non-official remedies: 291.  
Nursing as a profession: Brown 345.

**O**

Operative surgery, Volumes I and II: Horsley and Bigger 345.

**P**

Physical diagnosis: Major 291.  
Preoperative and postoperative treatment: Mason 402.  
Preventive medicine: Boyd 122.

**R**

Rural health practice: Mustard 344.

**S**

Senile cataract: Fisher 404.  
Stedman's medical dictionary: Stedman 292.  
Surgical clinics of North America: Issued Serially 123.  
Surgical clinics of North America: Issued Serially 152.  
Surgical pathology of the thyroid gland: Hertzler 403.  
Surgical treatment: Warbasse and Smythe 404.  
Synopsis of diseases of the heart and arteries: Herrmann 154.

**T**

The American medical profession, 1783 to 1850: Shafer 152.  
The diseases of infants and children: Griffith and Mitchell 346.  
The eye and its diseases: 82 International Authorities 122.  
The handmaiden of the sciences: Bell 402.  
The social component in medical care: Thornton and Knauth 346.  
Trauma and disease: Brahdy 404.

**W**

Why we do it: Mason 404.



## Miscellany

### DO YOU KNOW?

(A release of the Medical Society of the State of New York)

Kansas editors have found a new word to describe the mixture of snow and dust which storms bring. They call it "snust."

Sciatica is an inflammation of the sciatic nerve, which runs down the back of the thigh into the leg. It is usually caused by infection. Various methods of relief are advised by physicians, including heat, counter-irritants, internal remedies. The important thing is to discover the cause, if possible.

There are 13 months in the Ethiopian calendar.

Five meals a day instead of three are advocated by two doctors of Yale University, Howard W. Haggard and Leon A. Greenberg.

Making pennies count in the food budget requires real common sense planning. There is as much nutriment in the cheapest cuts of meat as in the most expensive ones. Macaroni and cheese is inexpensive and yet almost as nourishing as meat. Fish once a week improves the food balance and reduces costs. Milk is the "almost perfect food." No greater value can be found.

Happy marriages run in families, according to Drs. Lewis M. Terman and Paul Bittenwieser of the University of California. Of happy marriages which were studied, 86 per cent had happily married parents on both sides of the family.

Freezing temperature fails to kill some varieties of bacteria found on fruit; eight species, in fact, increased viably during the period of a year though kept at 16 degrees Fahrenheit, according to a report made by Miss Helen F. Smart of the U. S. Department of Agriculture.

Children who are dressed in bright colored garments are more conspicuous on the roads in the winter season and less likely to meet with accidents, states the U. S. Bureau of Home Economics.

Adults learn faster than children, it is maintained by Dr. Edward L. Thorndike of Teachers' College, Columbia University.

Pneumonia strikes swiftly, and its successful treatment requires speed in diagnosis, speed in treatment, speed in getting good nursing care. Pneumonia is an inflammation of the lungs. Cough, fever, chill, pain, heaviness in the side or chest, weakness or prostration, are danger signs. The person who feels this way should go to bed.

Few colds would develop into pneumonia if care were taken the first day or two to rest in bed, especially if there is a feeling of weakness. Drink plenty of cold water. Eat lightly and simply.

Egyptians had iron tools as early as 3000 B. C. The iron was obtained from meteorites.

Sleep immediately after memorizing material makes it easier to recall it, according to Dr. H. M. Johnson of the American University, Washington, D. C.

Surgery of the skull known as trephining is by no means modern. It is known to have been practiced 10,000 years ago in Europe, but, strangely enough, it was also known to the Peruvians, and now evidences have been found in Alaska of its use 2,000 years ago among Indians whose skeletons recently have been found.

After effects of infections are often more dangerous than the infections themselves. When the fever has disappeared, parents are prone to say: "Tommy's well again," and quarantine restrictions are resented. Orders of the doctor regarding diet and rest are ignored. Yet toxins may have affected different parts of the body, and, until normal muscular tone has been regained, the patient should not be permitted to exercise. Young hearts have been permanently damaged in this way.

Measles is not "a minor disease of childhood." In young children it often leads to pneumonia. Medical science has now provided improved treatment for this disease, but its seriousness still remains.

# INSULIN SQUIBB



Manufactured under license from  
the University of Toronto



*Highly purified*

**PURIFICATION** of Insulin, the separation and elimination of proteinous impurities is dependent upon the precise control of "pH" (hydrogen ion concentration). The continuous automatic recording of pH values permits of far more accurate control than occasional tests. . . . This is just one of the many precautions taken in the manufacture of Insulin Squibb—noted for its uniform potency, purity, stability and marked freedom from proteinous reaction-producing substances. . . . Available in 5-cc. and 10-cc. rubber-capped vials—in usual "strengths."

**E·R·SQUIBB & SONS, NEW YORK**  
MANUFACTURING CHEMISTS TO THE MEDICAL PROFESSION SINCE 1858.

**A SQUIBB GLANDULAR PRODUCT**



## Miscellany

### DO YOU KNOW?

(A release of the Medical Society of the State of New York)

The season for "colds" is at hand. They should not be neglected. Go to bed. Stay there as long as there is high temperature or fatigue. Pneumonia would show a sharp decrease if everyone did this.

"Why Am I A Doctor?" was the subject of a talk recently by Dr. Floyd S. Winslow, president, Medical Society of the State of New York. Said Dr. Winslow: "Why did we go into medicine? Why do we stay in medicine? Why do we live for, fight for, and sometimes die for medicine? Glory?"

"Where is the romance in our pursuit for those who follow it? It is said that every ship is a romantic object but the one we are sailing in; and it may also be said that medicine has romance for those who do not practice it. We work in the quiet of the sick room or the hospital. We walk daily with troubled humanity. Our satisfaction can only derive from the knowledge that we have performed our obligation to heal the sick, in this way paying the debt we owe for the accumulated knowledge and experience of the ages which has been made available to us.

"Quacks are plying their trade in the realm of economics and sociology as well as that of medicine. There is a need for a generous skepticism to counteract what often seems to be pathological optimism, substituting rhetoric for reason. Sooner than we think we may see the complete triumph of mediocrity."

Hoarseness that does not get well in a few days may be the symptom of serious disease.

Knowledge of cancer has increased a great deal. Many millions of dollars, and the energies of hundreds of experts, are devoted to further increasing this knowledge. As yet, nobody has been able to prove conclusively just what substance, circumstance or condition causes cancer. But the advances which have been made in diagno-

sis and treatment are well worth the effort expended.

There is no basis for the popular belief that thunderstorms turn milk sour.

First radio broadcast was demonstrated by Nathan B. Stubblefield in 1892. He gave a public exhibition of his invention January 1, 1902, in Fairmount Park, Philadelphia.

Jaundice, yellow color under the skin, is either toxic or obstructive. If toxic, it means that too many red blood corpuscles are broken down into the colored material which is found in the bile, and the condition is definitely in the nature of poisoning. The jaundice caused by obstruction is due to blocking of the bile passages between the liver and the intestines which throws bile pigments into the blood. It is often the symptom of gall stones.

Small knives are called pen-knives because they were originally used for cutting quill pens.

Why do children boast? In many instances, doubtless, because unstable conditions at home instill in them a feeling of inferiority to other children, which can be compensated for by boasting.

The word "cure" comes from the Latin "cura." Originally, the cure of the patient meant the care of the patient, and, incidentally, it still does.

Dummy clocks used by jewelers as signs are set at 8:18 because this is the most symmetrical arrangement, not because Lincoln died at this hour.

Eat more fish. It is still cheap. The proteins are fully as nutritious as those found in meats. Salt-water varieties produce iodine, necessary for health. "They always form a profitable addition to the diet," says Dr. James S. McLester, authority on nutrition, and past president American Medical Association.

It is an old saw that we should eat to live, not live to eat.



# *Surgery and pregnancy* place added strain on the diabetic

**R**ESORT to dietary measures alone is sufficient to keep many diabetic patients well-nourished, sugar-free and at work. When this is not practicable, or when infections, surgery, or pregnancy place added strain upon the patient, the use of Insulin is indicated. Furthermore, Insulin enables the patient to enjoy a wider variety of foods. This may aid in combating some of the complications.

Insulin Squibb is an aqueous solution of the active anti-diabetic principle obtained from pancreas. It is accurately assayed, uniformly potent, carefully purified, highly stable and remarkably free of pigmentary impurities and proteinous reaction-producing substances. Insulin Squibb of the usual strengths is supplied in 5-cc. and 10-cc. vials.

# INSULIN SQUIBB

**A SQUIBB GLANDULAR PRODUCT**



## Miscellany

### DO YOU KNOW?

(A release of the Medical Society of the State of New York)

The first hospital in America was established through the efforts of Benjamin Franklin and Dr. Thomas Bond and was opened in Philadelphia as the Pennsylvania Hospital in February 1752.

There are few nerves in the mouth of fish, and it is thought they suffer no pain when caught on a hook.

Three new chemical units have been found in the sun, according to Dr. Charlotte E. Moore of Princeton Observatory. Of the 92 chemical elements of the earth, 19 are absent in the sun. The three now discovered are osmium, iridium and thulium.

Cancer of the skin is practically unknown among Negroes.

Winter illnesses are bronchitis, pneumonia, influenza, and colds. They are not limited to the winter season, nor are they the only diseases that increase during winter, but they are the most frequent. Resistance is built up by wholesome food, sufficient rest and exercise. Real "health insurance" is that which the individual earns for himself by working to attain it. There is no other.

Devote a few minutes every day to exercise in the open air.

First psychological laboratory was established at Johns Hopkins University, Baltimore, in 1881 by G. Stanley Hall.

Birds are defective in the sense of smell and it is doubtful if this faculty is of any use to them.

Intestinal complaints are often caused by defective diet. Sluggishness may be helped in many cases by a diet with increased fruits and fresh vegetables, drinking plenty of water, and avoiding cathartics unless advised by a physician.

If the legs of a man corresponded in strength to those of a grasshopper, he could jump over an ordinary two-story house.

Thousands of persons have died as a direct result of taking a cathartic for abdominal pains which were caused by appendicitis. Find out what's the matter with a machine before you start repairing it is a good rule to follow.

Most people have a sharper memory of odors than any other impression.

Diet is an element in predisposition to some ailments. Anyone suffering from gallbladder trouble should cut down on fats and oils, such as butter and salad dressing. Sugars should be reduced. Plenty of water helps, as does buttermilk. Nobody does a very good job of selecting his own diet—this is a matter for experts.

First dental plates were patented in 1840.

The sandwich gets its name from the Earl of Sandwich who was an inveterate gambler and passed whole days in gambling, eating, without stopping from play, only a piece of meat between two pieces of bread.

A special dust counting microscope has been developed by an optical manufacturing company of Rochester, N. Y. It is valuable in detecting conditions in industrial establishments which cause silicosis. Squares in the microscope are one ten-thousandth of an inch across, and the dust specks look like stars, and can be readily counted.

The reason hogs wallow in the mud is because their sweat glands are few, and this reduces their temperature, a process achieved by most other animals by perspiring.

Animals which have been electrocuted can be saved by countershocks administered within four minutes, according to research by Prof. William T. McNiff and Dr. Leonard J. Piccoli of Fordham University.

# CONSERVATION OF ESSENTIAL ELEMENTS IN PROTECTIVE FOODS

## II. THE VITAMINS

● Refinement of vitamin assay methods has made practical many quantitative studies which had hitherto been impossible. Employment of these methods has yielded evidence which indicates that many factors may influence the vitamin content of foods which come to the table; in particular, the fruits and vegetables. Variety, maturity, time and temperature of storage after harvesting, and method of preparation, all have been found to affect the ultimate vitamin content of common foods. Several examples of the extent to which certain of these factors operate might well be given.

It has been shown that spinach slowly loses its vitamin C potency even in low temperature storage; at room temperature, one-half of the vitamin C is lost in three days; practically all antiscorbutic potency disappears in seven days (1).

Another report indicates a loss in vitamin C of 78 per cent in spinach stored two days at room temperature and 80 per cent loss in asparagus tips during four days' storage (2).

The vitamin C content of apples is markedly reduced during cold storage: 20 per cent in 4 to 6 months and about 40 per cent in 8 to 10 months (3).

Vitamin A in apples is, however, subject to less destruction than vitamin C during prolonged storage (4).

Prolonged cold storage of pears may result in a loss in the vitamin A and vitamin C content of nearly 50 per cent (5).

Further, solution losses which may occur during cooking vary with the individual product and with the method used in cooking. From 40 to 48 per cent of vitamin C may be lost to the water in which peas are cooked (6).

Vitamin C losses in 12 different vegetables have been reported to vary from 12 per cent in asparagus to 80 per cent in white onions (7).

These data demonstrate the seriousness of solution losses of vitamin C. It is considered probable that other water soluble vitamins are affected in a similar way.

Thus, by the time fruits and vegetables spend some days in transit or storage before reaching the kitchen and are cooked by the usual home method, much of the original vitamin content may have been lost. Little can be done to prevent storage losses when fresh fruits and vegetables are not available from the home garden, but solution losses may in part be overcome by using the cooking water.

Fortunately, in the commercial canning procedure, products are harvested at the optimum stage of maturity and canned immediately, using only a limited quantity of water which is retained in the can. As a result, storage losses of the vitamins are reduced (8), and solution losses may be eliminated by the use of the liquid in which the food is canned.

## AMERICAN CAN COMPANY

230 Park Avenue, New York City

(1) 1936. Food Research 1, 1.  
(2) 1936. J. Soc. Chem. Ind. 55, 153T.  
(3) 1933. J. Agr. Res. 46, 1039.

(4) 1936. Food Research 1, 121.  
(5) 1934. J. Am. Diet. Assn. 10, 217.  
(6) 1936. J. Nutrition 12, 285.

(7) 1936. J. Home Econ. 28, 15.  
(8) a. 1921. Proc. Soc. Exp. Biol. Med. 18, 164

b. 1928. Ind. Eng. Chem. 20, 202  
c. 1929. Ibid. 21, 347  
d. 1932. J. Home Econ. 24, 826

*This is the twenty-first in a series of monthly articles, which will summarize, for your convenience, the conclusions about canned foods which authorities in nutritional research have reached. We want to make this series valuable to you, and so we ask your help. Will you tell us on a post card addressed to the American Can Company, New York, N. Y., what phases of canned foods knowledge are of greatest interest to you? Your suggestions will determine the subject matter of future articles.*



The Seal of Acceptance denotes that the statements in this advertisement are acceptable to the Council on Foods of the American Medical Association.



## Miscellany

### DO YOU KNOW?

(A release of the Medical Society of the State of New York)

100 years ago, September 5, 1826, Sam Houston was elected the first president of the Republic of Texas.

Persons suffering from nervous ailments are usually difficult to convince that they are not the victims of serious organic diseases.

Fatigue, excessive or unexplained, is a serious symptom. He who pushes himself to the point of true exhaustion is like a motorist who goes through a red light. He may do it once in safety, but in the end the fate which waits round the corner will get him.

Tuberculosis, heart disease and many other ailments have fatigue as one of their symptoms. In fact, it is sometimes the earliest symptom, a warning to the wise to seek help early, when the chances for successful treatment are greatest.

Concrete roads are thinner in the center than on the edges.

More banking on curves of highways to avoid accidents is advocated by Joseph Barnett of the U. S. Bureau of Public Roads, after 900 tests at speeds up to 75 miles an hour.

First skating champion was Charles June of Newburgh, N. Y., who defeated English contestants in 1823.

There are more than two hundred different forms of death listed by the vital statisticians.

Engraving of initials and monograms on silverware began in the days when guests carried their own knives and forks to the banquet.

The human race is about one million years old, according to Dr. Hellmut de Terra of Yale University.

Fifty million years ago, the rhinoceros roamed the western part of the United States, the American Philosophical Society was told recently by Prof. William B. Scott of Princeton.

Mankind has a priceless gift in the pain that comes to him as a warning that something is wrong. It is an alarm system without which he could not live for long. But it is not always easy to tell the meaning of pain. Pain in one place may be "referred"—that is, the cause may be in another region. Headache may mean any one of a dozen things. Abdominal pains are often deceptive. Pains in the foot or hand usually mean disorder close to the seat of pain. Pains which persist, or are severe, require explanation by a skilled physician, accustomed to distinguish between the true and the false, who will attribute them to their actual causes.

Don't try to scold health into your children. Example is better than precept. They see more than we think.

Headaches may be caused by trouble with the eyes or kidneys, from high blood pressure, or a number of other causes, more or less obscure. Pains are often remote from the location of the real cause of pain.

Every baby should be vaccinated against smallpox at the age of four months.

Even small babies can be taught to take orange or tomato juice from a spoon, and it is good for them to learn to do this.

Most deaths from pneumonia occur during the winter months.

Tissue building foods: milk, beans, fish, meat and nuts.

100 years ago, October 24, 1826, the first match patent was awarded to Alonzo D. Philips.

The muscles of the heart never get a full rest from the moment of birth to the instant of death. Only for a fraction of a second between beats does the heart approximate relaxation.

# How much should a child grow or gain from time to time?

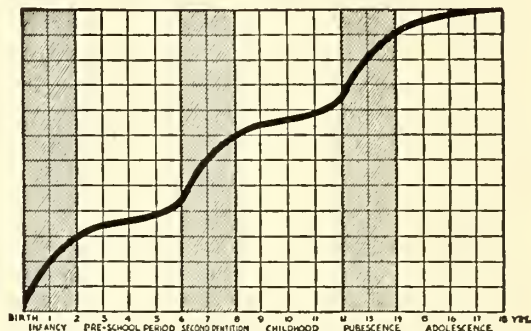
*That is more significant than mere weight and height measurements*

**T**O THE PARENT the mark on the wall and the reading on the scale reveal the child's growth. But *to the doctor* deviations from the periodic gains offer a sensitive index of dietary or disease disturbances.

The weight curve in infancy furnishes the most delicate index of progress. The birth weight doubles at five months and trebles at a year. Thereafter gains are slower; six pounds during the second year; five during the third; four during the fourth and fifth years. The trend of the first growth cycle is indicated in the chart.

**T**HIS pattern of growth repeats itself during childhood and adolescence. Once the growth increments have been determined for a child, his assessment becomes individual and accurate.

When the child fails to gain in weight, high caloric feeding is simplified by reinforcing food with Karo Syrup. If the total caloric intake exceeds the output, the child will gain weight, provided the diet is adequate and chronic disturbances corrected.



CYCLES OF GROWTH FROM BIRTH TO MATURITY

The course of growth from birth to maturity is continuous but rhythmic. This span includes three cycles. The rapid growth in infancy is followed by the slow growth during the pre-school period; the rapid growth during the period of second dentition is followed by the slower growth during childhood; finally, the rapid growth during pubescence is followed by the slower growth during adolescence.

From Kugelmass' "Growing Superior Children", 1935.  
(Appleton-Century)

## *Every Article of Diet can be Enriched with Calories*

Karo provides 60 calories per tablespoon. It is relished added to milk, fruit and fruit juices, vegetables, vegetable waters, cereals, breads and desserts. Karo consists of dextrins, maltose and dextrose (with a small percentage of sucrose added for flavor).

For further information, write  
**CORN PRODUCTS SALES COMPANY**  
Dept. SJ 3, 17 Battery Place, New York, N. Y.



★ Infant feeding practice is primarily the concern of the physician, therefore, Karo for infant feeding is advertised to the Medical Profession exclusively.



## Miscellany

### THE WAR ON SYPHILIS

Greater progress will be made in 1937 than in any year since the World War in the campaign to stamp out syphilis and reduce the widespread prevalence of gonorrhea in the United States, it is confidently predicted by Dr. William F. Snow, General Director of the American Social Hygiene Association.

Important factors, Dr. Snow pointed out, are the funds available for this purpose to the United States Public Health Service and the Children's Bureau through the Social Security Act, and the changed attitude of newspapers and popular magazines which are now making possible the education of the general public through frank scientific and reassuring discussion.

"It is conservatively estimated," said Dr. Snow, "that about 6,000,000 men, women and children throughout the nation are infected with syphilis, although not one in ten is under treatment by a licensed physician; and the amount of gonorrhea is more than twice as great. This minimum is maintained from year to year by new cases which thus far offset reductions through cure of patients. It is especially tragic that the age group in which the largest number of infections occur is between 16 and 30.

"Aside from the naturally appealing reasons for stamping out syphilis, such as the physical handicaps and suffering, the emotional distress, economic burdens, and the broken homes to which it is related, there is also a staggering tax load that can be traced to this disease. Thousands of its sufferers—their personal funds exhausted, and treatment delayed until their hearts or other organs have been damaged—are in free hospital wards or being cared for by visiting nurse organizations; additional thousands lose their sight and receive state blind relief pensions; many more thousands are admitted to institutions for the insane. If all fatalities actually due to syphilis were reported as such, very probably it would be found the leading cause of death in the United States.

"The persistent activities of such agencies as the American Social Hygiene Association and its affiliated and cooperating societies have supplemented the efforts of

health departments and the medical and nursing professions to build a practical program for the control of venereal diseases. This has been accomplished; and it remains only to secure the necessary state and local appropriations, and sustained public interest, to insure steady progress in the conquest of syphilis and the treatment and control of gonorrhea."

### EXPENDITURES FOR PUBLIC HEALTH

Health protection for the public of the United States is disposed of with the expenditure of only 50 cents annually per person in tax money, compared with the annual average expenditure of \$4.52 per person for police protection and \$3.32 per person for fire protection.

This is but one item in a pamphlet, "Health Facts," just off the press, published by The National Health Council as part of the material for the Health Today and Tomorrow campaign, recently launched. Already more than 400 cities have enlisted in the campaign, through their state or city and county health officers, who are taking the initiative in most of those localities. The climax of the campaign is to be, in general, an open Town Meeting held after a thorough community-wide health inquiry has been made to discover public health needs in that locality.

Most of the statistics contained in "Health Facts" furnish a basis of comparison of local health conditions with immediately attainable health goals. Among other striking statements made in this pamphlet, the following are a few which show the need for greater appropriations for community health work, from both public and private sources:

We are graduating as many persons from the community into nervous and mental hospitals as we are sending out into the community each year from our colleges and universities. More than 50% of all hospital cases in this country are those of some form of mental illness. The present annual average of mental cases recovered or improved is about 40 per cent.

Another statement: Relief funds make little appreciable addition to health services for the needy. Social Security Act appropriations, when they become availa-

ble for public health work, will not be large enough to make up for the depression shrinkage in regular health department appropriations since 1929.

Under the heading, "What Voluntary Health Agencies Do," we read in this pamphlet that voluntary hospitals, with about half as many beds as government hospitals, accommodate about 70% of the admissions in any one year.

Through health education campaigns financed privately the diphtheria case rate (in one urban campaign) was reduced from 197 for every 100,000 population to 24.

Forty-eight per cent of the nurses available for community services are paid from private funds. On the other hand, the public health nursing service is the largest single item among public health expenditures—about one-third to one-half of the tax funds for public health goes to pay for public health nurses. Yet the total number of nurses now serving the country, however, amounts to only one-third of the number needed in communities. Public health nursing organizations have suffered a 10 per cent reduction in income, while the volume of free service has had to be increased.

"Health Can Be Measured" and "Health Can Be Purchased" are headings of two other sections of the pamphlet. Dr. Louis I. Dublin, statistician and vice president of the Metropolitan Life Insurance Company, has written the foreword. This is a limited edition, and it is already apparent that a second printing will be necessary. To cover the cost, a nominal charge is made of twenty cents for a single copy and fifteen cents a copy in lots of 100 or more, ordered from The National Health Council, 50 West 50th Street, New York City. Other pamphlets on health subjects are now being prepared.

It is planned to make this health education campaign permanent, to be sponsored by The National Health Council.

#### EXERCISE AND MIDDLE AGE

"Many middle-aged men are likely to forget they are no longer young. Inspired by their own conceit, they sometimes suddenly indulge in violent or sustained exercise and consequently suffer a long illness or worse. It should be remembered that over-exercise for men beyond forty is . . . bad."

## Behind MERCUROCHROME

(dibrom-oxymercuri-fluorescein-sodium)



*is a background of*

Precise manufacturing methods insuring uniformity

Controlled laboratory investigation

Chemical and biological control of each lot produced

Extensive clinical application

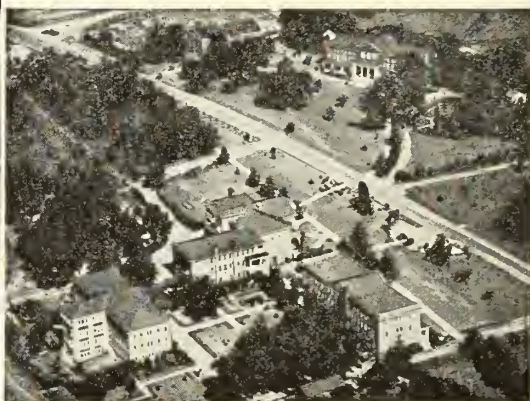
Thirteen years' acceptance by the Council of Pharmacy and Chemistry of the American Medical Association



A booklet summarizing the important reports on Mercurochrome and describing its various uses will be sent to physicians on request.

**Hynson, Westcott & Dunning, Inc.**

BALTIMORE, MARYLAND



### ALLEN'S INVALID HOME

MILLEDGEVILLE, GA.

Established 1890

For the Treatment of  
NERVOUS AND MENTAL DISEASES

Grounds 600 Acres  
Buildings Brick Fireproof  
Comfortable, Convenient  
Site High and Healthful

E. W. Allen, M. D., Department for Men  
H. D. Allen, M. D., Department for Women

Terms Reasonable









41A 371

